

The Onset of **FERTILITY TRANSITION** in **SUB-SAHARAN AFRICA**

Edited by
Thérèse Locoh
Véronique Hertrich



international union
for the scientific study
of population

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The second half of the eighties will doubtless come to be seen as a watershed in the demographic history of Sub-Saharan Africa. Fertility has begun to decline in some countries for the first time. Will the trend spread to the whole of the region in the near future? Situations are diverse and often paradoxical, tangible signs few and far between: attempts at prognosis hazardous.

A discussion and synthesis of these trends seemed necessary. In 1991, from 19 to 22 November, the International Union for the Scientific Study of Population organized a seminar in Harare (Zimbabwe) devoted to the topic and entitled: "The Course of Fertility Transition in Sub-Saharan Africa". This book consists of a selection of the papers presented at the seminar.

The assumption that fertility is declining is first discussed. To what extent do recent data point to the onset of a fertility transition in Sub-Saharan Africa? Will the lowering of childhood mortality have a further impact on the decline of fertility? What can the experience of Asia and Latin America teach us regarding prospects for a fertility transition in Africa?

After this outline of overall prospects, specific cases are analysed in the second part of the volume. Looking at the fertility transition in Zimbabwe in the context of socio-economic development: acknowledging the diverseness of reproductive models developed by the populations of Rwanda, Togo and Ghana, and analysing the behaviour and aspirations of men in South Benin, it becomes apparent that no one deterministic framework can serve in the attempt to understand changing fertility patterns among African populations.

Nevertheless, will this change in fertility be linked, as elsewhere, to the rising cost of children? The matter cannot be discussed without taking account of the different practices used by most African societies to manage the costs of reproduction, and particularly the practice of child fostering. What is required is an analysis of family strategies and their persistence or change in the face of current crises in Africa. This is the approach adopted in the third part of this book.

The extension of contraception undeniably has an important role to play in fertility transition in Africa. But to what extent are family planning services adapted to demand? What is the role, all too often disregarded, that association networks can play in encouraging the adoption of new behaviour? To what extent is the pathological infertility that afflicts certain regions an obstacle to the general control of fertility by affected societies? Such are the questions raised in the last part.

A concluding chapter identifies the trends and prospects for a better understanding of the dynamics of reproduction in Africa.

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International Union for the Scientific Study of Population

The International Union for the Scientific Study of Population (IUSSP) is a non-profit worldwide association of population specialists established in 1928. It is composed of demographers, economists, sociologists, statisticians, physicians, public health officers, family planners, administrators, policy makers, etc., belonging to more than a hundred countries.

Its aims are to draw the attention of governments, international governmental and non-governmental organizations, and the general public on population problems as well as to promote demography as a science. To achieve these aims, the Union organizes worldwide, regional and specialized conferences, operates scientific activities and publishes the Proceedings of its conferences and the results of the work of its committees. The Union has consultative status with the Economic and Social Council of the United Nations and with UNESCO.

The Union publishes books, papers, conference proceedings, reports on seminars and a Newsletter from its headquarters in Liège. The contribution of the United Nations Population Fund (UNFPA) and its many other generous donors to this extensive publication programme is gratefully acknowledged.

IUSSP, rue des Augustins 34 - 4000 Liège, Belgium
Tel. : (32)41/22.40.80 - Cable : Popunion-Liege
Telex : 42648 Popun - Fax number : (32)41/22.38.47

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Introduction

Thérèse LOCOH, Véronique HERTRICH

In assessing the situation facing the world population both now and in the future it is crucial to remember that total fertility rates of between 5 and 7 children continue to be the norm throughout sub-Saharan Africa. When will the fertility transition take place in sub-Saharan Africa and at what speed will it occur? The future size of both the African and world population depends, in the long term, on the answers to those questions. The only other regions of the world where populations continue to grow at rates comparable to those of sub-Saharan Africa – 3 % a year, on average – are a few countries in South Asia (Bangladesh, Afghanistan and Pakistan) and in the Middle East. Mortality levels in Africa remain very high. Moreover, economic, climatic and, more recently, epidemic disasters (cholera and AIDS in particular) are all hindering further improvements in health. Nevertheless mortality has undeniably fallen over the past 50 years – particularly infant and child mortality. It is these earlier advances in health which, coupled with high and stable fertility levels, have led to present rates of population growth in sub-Saharan Africa.

The United Nations' projections for the sub-continent are based on the assumption of a continued downward trend in mortality coupled with a set of assumptions regarding possible changes in fertility levels. All the projections forecast a lowering of fertility but at differing rates. A few figures illustrate the possible consequences of the trend in fertility. To take just the two outer variants (these are really only attempts at indicating plausible limits within which the real trend will lie), one forecasts a slow decline (the high variant), the other a fast decline (the low variant). In the year 2025, i.e. in a generation's time, sub-Saharan Africa will have 1.5 billion inhabitants assuming the 'high' variant and 1.1 billion assuming the 'low' variant. This means 400 million people more or fewer according to the variant adopted. However carefully such 'scenarios' are constructed they always remain highly conjectural, and this is particularly true for sub-Saharan Africa where the quality of demographic data is often poor and figures may even be entirely lacking for some countries. Yet, over the last 20 years, two world-wide survey programmes (World Fertility Surveys in the seventies, Demographic and Health Surveys from 1986) and, in some

countries, census or national survey data, have added considerably to our store of knowledge regarding fertility in general, its levels, birth-spacing mechanisms and the main cultural and social factors that explain the continued value placed on high fertility.

The stereotyped image of Africa as a continent with uniformly high levels of fertility is being challenged. A more qualified picture is gradually emerging as demographers, anthropologists and sociologists expand our knowledge and reveal a wide range of different trends reflecting the specific approach of each society. Moreover, DHS survey results have confirmed that fertility has actually begun to decline in at least three of the countries participating in the programme – Botswana, Kenya and Zimbabwe. The moment is thus unique in the history of sub-Saharan African demography and calls for fresh research to track and describe the course of these new developments, to analyze the determinants of decline as well as the obstacles hindering further progress. The knowledge thus gained will serve to clarify which policies need to be implemented and the types of infrastructure and actions in need of development.

Studies conducted both on the past history of developed countries and on the more recent history of developing countries have concluded that, in its journey from high to low fertility, each society experiments with its own solutions. Solutions that work for one society at a given moment in time may not necessarily be successful elsewhere. It is clearly important for present trends to be assessed and compared with the transition experience of other regions in the world. Equally, it is important to shed light on African fertility models and on the mechanisms that lead populations and individuals to redefine their reproductive behaviour, and particularly what induces them to resort to modern methods of contraception.

It is these felt needs that the IUSSP was responding to when it decided to hold a seminar on "The onset of fertility transition in sub-Saharan Africa" in Harare, Zimbabwe, in November 1991. This book is a compilation of some the papers presented at that seminar. It is divided into four parts:

- Has sustained fertility decline begun in sub-Saharan Africa?
- African fertility patterns: similarities and paradoxes
- The cost of children: family strategies and fertility behaviour
- Fertility control: collective goals and individual expectations

HAS SUSTAINED FERTILITY DECLINE BEGUN IN SUB-SAHARAN AFRICA?

The first part of the book begins by describing recent trends in fertility as observed from available data. We should not forget that up-to-date information is not available for all African countries. J. Cleland, I. Timaeus and N. Onuoha provide a general assessment of fertility trends in sub-Saharan Africa in the Eighties. Period fertility has fallen in about half of the

17 countries for which recent data is available. The downward trend is now clearly perceptible in at least three countries: Botswana, Kenya and Zimbabwe, and can be largely attributed to increases in the use of contraception, associated in turn with higher levels of female education and to effective family planning programmes. Signs of an imminent decline are also discernible in southern Africa and in southern Nigeria. The conclusion drawn by J. Cleland and his colleagues, though measured and cautious, is clear: "The broad impression of fertility change in Africa is likely to be valid (p.17)". Very recent findings substantiate this view. In Kenya, the 1993 DHS survey has confirmed that fertility is indeed declining very rapidly and in Rwanda (DHS, 1992) fertility would also seem to be coming down. The fertility transition has not begun everywhere at the same rate however, and there are clear regional differentials. In particular, it would seem that East and southern Africa are further along the road to change than West Africa.

Many studies on the demographic transition have shown that the decline in childhood mortality is one of the essential conditions for a decline in fertility. M. Barbieri takes a fresh look at the association between lower childhood mortality levels and the decline in fertility for the ten-year period preceding the DHS surveys in the 11 sub-Saharan countries for which data is available. Two countries, Botswana and Zimbabwe, provide a textbook illustration of the expected association: a sustained and steady fall in childhood mortality is accompanied by a noticeable decline in fertility levels. By contrast, Kenya has also experienced a fall in fertility in spite of an upturn in mortality levels over the last 10 years and several countries in which mortality levels had dropped quite spectacularly (Burundi, Liberia, Senegal) have not experienced a concomitant decline in fertility levels. It would seem that the actual level of mortality determines whether or not fertility will fall. M. Barbieri hypothesizes the existence of a threshold effect: where the probability of dying before two years of age is greater than 100 to 150 per thousand, fertility behaviour would seem to be more or less impervious to changes in childhood mortality.

Does Africa constitute an "exception" or will the recent experience of fertility declines in other developing continents be replicated in Africa? At what moment did fertility begin to fall in other developing countries? The very specific nature of African fertility patterns is a recurrent theme in debates surrounding the demographic transition. It therefore seemed pertinent to contrast current tenuous signs of a fertility transition in sub-Saharan Africa with the experiences of two other developing continents, Latin America and Asia where the fertility transition has occurred recently.

In Latin America (J.M. Guzman) socio-economic growth created the conditions for, and accompanied, the onset of the demographic transition. The rapid fall in numbers employed in agriculture, the growth of the market economy and of the wage-earning sector, the steady rise in schooling and the participation of women in the economy, in addition to rapid urbanization, set the scene for a decline in fertility. The modernization of the economy paired with the diffusion of new family ideals and active government

policies favouring family planning were the three key factors that led to the rapid decline in fertility experienced. The situation in Africa is quite different: children continue to play a decisive role in production systems and the processes enabling the diffusion of new ideals are only barely perceptible and are only timidly supported by government policies. Moreover, at the time when, according to J.M. Guzman, the onset of the fertility transition occurred in Latin America, infant mortality rates were generally below 135 per thousand and literacy rates for adults were higher than 50 percent for all the countries concerned, which is far from being the case in sub-Saharan Africa.

In most East Asian countries the decline in fertility has been spectacular (J. Casterline). In some South-East Asian and South Asian countries the decline has been slower in getting off the ground, the clearest example being India (although the situation varies greatly between States in this vast country). Here too, fertility can be said to have begun to fall in almost all countries (with the exception of Pakistan and Nepal). The Asian experience is particularly instructive since it provides numerous, and statistically well documented, examples of countries with pre-transitional TFRs of about 6 children, which then fell very rapidly, leading to completed family sizes close to replacement levels. Asia is the region in the world where family planning programmes have been most widely developed. In certain cases such programmes have been supported by coercive population policies of which China, but also India, are the better known examples. According to J. Casterline the diffusion of contraception undeniably constitutes the most important determinant of the Asian fertility decline. And it is the increasing cost of children, mainly arising out of parents' aspiration for the education of their children, that has induced couples to adopt birth control methods. The picture in sub-Saharan Africa has so far been quite different: family planning programmes are limited in size, and interest in birth control practices in adults is low or easily shaken.

AFRICAN FERTILITY PATTERNS: SIMILARITIES AND PARADOXES

The data available for Africa demonstrate that the demographic transition does not follow a uniform pattern but, rather, that situations vary widely even if similarities can be found between some countries. The second part of the book looks at the case of a country where the transition is occurring very rapidly (Zimbabwe) and at several countries where trends seem stable (Togo, Ghana, Rwanda and Benin).

M. Mhloyi, explaining the onset of the fertility transition in Zimbabwe which occurred at the end of the sixties, focuses on the transformation of the status and roles of family members. The economic system that evolved during the colonial period, whereby men were compelled to seek out wage-earning jobs while women remained on the land to provide food supplies,

had reinforced the subordinate position of women and led to a deterioration in their status. On the contrary, recent political and economic events in the country, affected by a war of liberation, have created conditions that have favoured radical changes on behalf of women, both legally and sociologically. One of the ways in which these changes have been expressed is the rise in schooling levels of women up to secondary level. Parents' increasing aspiration for their children to be educated has profoundly modified perceptions of the costs and benefits of children and has led them, far more than was the case in the past, to take decisions at the level of the nuclear family and to revise their fertility objectives. Finally, well entrenched family planning programmes ensure easy access to modern contraceptive methods thereby providing couples with the means to better control of their fertility.

The case of Zimbabwe is an illustration of the fertility transition now under way in a few African countries. However, in most other African countries, average completed family size remains high. T. Locoh tries to understand why these high fertility levels are unchanged in three countries: Rwanda (see, p. III), Togo and Ghana. She identifies a number of factors that interact, though to different degrees depending on the country and the province, and lead to an apparent stability in reproductive behaviour. However, changes are indeed occurring, but their effects diverge and often seem to cancel one another out. She argues for a diversification of approaches so that the specific aspects of fertility patterns are highlighted according to the historical circumstances and to the economic and social organization of the various African societies. Her analysis stresses the importance of marital behaviour patterns: age at marriage, but also marriage disruption (also quoted by Mhloyi), polygyny, place of residence of the spouses. Although fertility remains high in the three countries considered, it is clear that, in urban areas, a decline is already noticeable.

Finally, Tabutin and Donadje explore a new area, one that is often pointed to as being significant but which has rarely been studied by means of a statistical survey, namely that of male fertility. The picture they draw of both urban and rural areas of South Benin shows the extent to which men continue to value large families, the very strong influence of polygamy and the perception of the role of men and women as quite unequal in fertility decision-making. In societies where levels of contraceptive use are insignificant (less than 5%), a man's marital status determines the number of his offspring (completed family size is twice as high for polygynous men as it is for monogamous ones). Given a socio-cultural context in which high fertility is given such prominence, the probability of a fertility transition remains remote.

THE COST OF CHILDREN: FAMILY STRATEGIES AND FERTILITY BEHAVIOUR

Micro-economic theories of fertility focusing primarily on the decisions made by the individuals within a couple have been applied in nume-

rous studies in Africa. The result of these attempts has been to cast doubts on the pertinence of such models for African family structure. This section looks at the issue of the costs and benefits of children, a version of which was applied to Africa by J. Caldwell under the term "intergenerational wealth flows". It led to a reappraisal of the demographic transition in Africa in the early Eighties.

More attention has been focused recently on the uniqueness of some aspects of African family systems and child-care practices. Isiugo-Abanihe devotes his analysis to the practice of "child fostering". This practice is very common in Africa and is an indication that responsibility for managing the costs and benefits of children lies predominantly with the extended family rather than with the nuclear, biological family. This redistribution of the "burden" of child-rearing has a bearing on parent-child relations as well as on reproductive behaviour and encourages couples to continue having large families. A weakening of the practice of "fostering", in the many African societies where it is still practiced, would result in closer parent-child relations and in revised fertility ideals. Indeed, this is what seems to be happening in some "westernized" groups, according to P. Makinwa-Adebusoye in her study of Nigeria.

Schooling levels rose rapidly in the first 20 years following independence (1960-1980) and have been one of the prime factors in making parents aware of the "cost" of children. For social groups that are now undergoing a fertility transition and for whom schooling has in the past represented an important stepping-stone to social promotion, such a strategy becomes costly and the benefits accruing from it uncertain (P. Makinwa-Adebusoye). In many sub-Saharan African countries, and this is particularly true for Nigeria, schooling was subsidized by the State during the bountiful years of the petrol boom; education was thus available to all and was relatively inexpensive. The prevailing economic situation has brought with it a dramatic increase in the cost of education which must now be borne by parents. In parallel, opportunities for professional promotion have dwindled sharply as the wage-earning sector in urban areas has shrunk. Adults can thus no longer bank on the benefits that they could formerly expect to derive from their children's schooling. The younger generation no longer systematically cares for the older. These rising costs and dwindling benefits of child-rearing could well lead to a revision of the value traditionally attached to high fertility.

Although the effects of social change on family structure and relations between adults and young people are more manifest among the educated urban elite, they are also tangible in rural areas. This is the subject of the article by P. Vimard, A. Quesnel and A. Guillaume. The authors compare several cash crop economies. These are production systems which, although part of the agricultural sphere, are integrated to differing degrees within the cash economy of the country and within international trade channels. The comparison of such production systems in Côte d'Ivoire and Togo serves to illustrate the link between status within a given production system and reproductive aspirations and behaviour. Relations between members of

a household and the desire for children depend on whether the ethnic group under consideration owns the land or merely cultivates it (the immigrant tenant farmers). The analysis demonstrates that the association between economic constraints and fertility is mediated by family practices. This explains the diversity of existing interrelations and the importance, in the quest for a better understanding of fertility trends, of multi-disciplinary studies that combine and compare economic and demographic data and information on social structure and social organisation.

C. Bledsoe offers an anthropological perspective on the phenomenon of marginalisation in the construction of kin relations, thus contributing an original approach to the study of family strategies and their impact on fertility. The author starts out from the premise that there is room in African family practices for a "social construct of demographic reality". The "social" redefinition of the various categories that compose a family, parents, wives, dependents, enables a head of household to decide, according to circumstances, how to organize his kin. This provides him with a wider and more flexible range of alternatives than the purely demographic approach, namely that of limiting the number of offspring by resorting to contraception. This approach offers a completely new way of looking at the determinants of fertility ideals while also usefully pointing out the heightened risk of marginalisation facing some children and wives in the climate of acute crisis currently prevailing in Africa.

FERTILITY CONTROL: COLLECTIVE GOALS AND INDIVIDUAL EXPECTATIONS

The development of contraceptive use will undeniably play an important part in Africa's fertility transition. But are existing family planning services truly adapted to demand? L. Adeokun tackles this vital question. The limited success of family planning services in most African countries is due, in part, to low levels of "demand" for contraception, but very probably also to the fact that the services offered are not geared to the expectations of potential clients. L. Adeokun shows, with the aid of numerous examples, the way in which family planning services are failing, and illustrates the complexity of the factors involved. The problems encountered in setting up services, and the high proportions who stop contracepting, cannot all be attributed to difficulties of a financial nature or to the shortage of equipment. Some of the obstacles – the hierarchical relations at the centres, the illiteracy of most women, break-downs in stock supplies – are a reflection of the overall socio-economic organization of African countries and not just the result of the inadequacies of family planning programmes. A large number of practical suggestions arise out of this survey, notably on the need for better human relations in fulfilling the advisory role of family planning. L. Adeokun suggests that too much emphasis may have been placed on the macro-demographic objectives of family planning pro-

grammes – client recruitment targets, improvement of service administration – and not enough on the other approach to family planning as a service to individuals and to couples with a view to enhancing their well-being. These programmes, which have very ambitious targets and limited means available with which to fulfill them, have often disappointed potential clients, those wishing to resort to contraception, and failed to convince unmotivated clients, by failing to pay special attention to their ambivalent requirements.

Among the requirements that family planning programmes should meet, but which remain unidentified, is the problem of infertility that troubles some individuals but can also affect whole groups in areas where sterilizing diseases are endemic (Akam Evina). The fear of childlessness, always latent in African societies, drives couples to pronatalist behaviour patterns and impedes the adoption of contraception. It is therefore all the more important that an effective response be provided to childless couples and that public health programmes be set up in countries where infertility remains endemic.

In countries where the legitimacy of family planning has not yet been sufficiently supported by clear governmental guidelines, associations and various community bodies can serve as intermediaries permitting the expression by individuals, with the approval of their reference group, of their newly felt need to control their fertility and for macro-social bodies to experiment with new approaches to encourage innovative behaviour. The amazing explosion of NGOs in both the "North" and "South" points to citizens' aspiration to participate in the actions of neighbourhood groups in which they are socially recognized and which provide them with a feeling of security, essential for the adoption of innovative behaviour patterns. C. Hammerslough shows, using the example of Kenya, that belonging to a women's group has a positive effect on knowledge and practice of contraception. This effect is observed not only for the women who are members of the group but extends to all the women in the villages where such groups exist. This proves the need to devote more time and space to the study of community groups, which are the intermediate structures for the modelling of social practices.

In a closing chapter, H. Ware draws lessons from the research presented in this book. She underlines the areas in need of greater attention, the unresolved questions, those areas that require a more in-depth treatment. But she also identifies the practical measures that the findings presented here could inspire in those responsible for national affairs and to the international community at large, thereby creating the necessary link between research and action.

This book does not claim to provide an exhaustive view of the onset of the African fertility transition, neither does it claim to have dealt with all matters associated with that process. Even the attempt to provide a statistical overview is trammelled by the paucity of available data. Of the case studies only a few have been included here, but others could clearly also have been included. This is the case for Kenya where the recent decline

in fertility has given rise to a flurry of analyses. We selected an analysis of the impact of women's associations on access to family planning rather than include another study of fertility trends. The absence of a chapter on the impact of the Aids epidemic on reproductive behaviour is to be regretted. However, an in-depth treatment of the subject was impossible in view of the unavailability of survey data highlighting this specific relationship.

The purpose of the contributors was to mark this milestone in the history of African demography, to assess the state of knowledge in different areas that have not received much attention to date and, hopefully, to stimulate new debates and new avenues of research. Several chapters thus broach subjects that offer a new approach to the study of the African transition. Such is the case for the study of male fertility, the comparison of several agricultural societies undergoing transformation, the analysis of family strategies, those which spread the burden of caring for dependents in order better to care for them (by way of child fostering) and those which lead heads of households to marginalize some of their kinfolk.

Finally, some incontrovertible subjects in the study of demographic transition needed to be re-examined in the African context. Such was the case for the micro-economic theories of fertility and the quality of family planning services provided by African programmes.

New findings have been published since the seminar in Harare took place. Some of these findings confirm the downward trend in fertility (Kenya, 1993, Rwanda, 1992), others on the other hand point to fertility levels remaining at pretransitional levels (Niger, 1993). The diagnosis of the onset of a fertility decline has been confirmed for some countries and our knowledge of fertility levels has progressed. What we do not yet know is whether these initial changes will spread to the whole continent or whether they will continue to be restricted to a few countries for some time yet. We do not know the pace of this decline, nor whether it will continue or stabilize at levels leading to continued rapid population growth (desired family sizes rarely fall below four children per woman in African surveys). But we have even less information regarding the way in which economic systems, societies in general and family structures are adjusting to changes in fertility. The study of demographic phenomena – for which civil registration data remains an essential pre-requisite though it is no longer mentioned – must be associated with further research on the interaction between macro-social factors and changes in fertility. This book attempts to meet this need.

The prevailing scarcity of means confronting Africa requires research to contribute effectively to the best possible distribution of resources and to foresee – so as to offset them where necessary – the transitional imbalances that may occur as a result of new demographic behaviour patterns being adopted. To that end, surveys must go beyond the national level since national averages conceal the regional disparities that exist, not only between urban and rural areas, but also between social groups. Some societies will experience very rapid changes in their fertility schedules while in others fertility could remain stable for a long time to come.

The African demographic transition has barely begun. Research will require a multi-disciplinary approach combining economists, historians, sociologists and demographers. The arrival on the scene of many African researchers, keen to apply their knowledge of the societies of which they are members to an analysis of this key period in the history of African populations, may provide a vital impetus to the development of new avenues of research.

Fertility Change in Sub-Saharan Africa: a Review of the Evidence

John CLELAND*, Nelson ONUOHA* and Ian TIMÆUS*

The central issue addressed in this chapter is whether or not fertility decline has started in sub-Saharan Africa. As is true for many research questions, this one contains concealed implications. The first such implication is that fertility decline, once established, is likely to be irreversible and sustained and thus of huge long term demographic significance. An alternative perspective is that any fall in African fertility might be a temporary response to the adverse economic conditions of the 1980s and that birth rates might rebound to previous high levels in parallel with any future upturn in economic growth. Past demographic transition in other regions suggests that fertility decline, at least when driven by rising fertility regulation within marriage, is indeed irreversible and sustained. Over the last century, there have been few major exceptions to the generalization that fertility decline, once underway, proceeds until the level of childbearing is within the range of 1.5 to 3.5 births per woman. While the pace of change has varied greatly and there may be plateaus or even temporary reversals, such as the post-second world war baby boom, nevertheless the generalization has proved to be remarkably robust. It follows, therefore, that any fertility decline in Africa is much more likely to mark the onset of sustained transition than to represent a temporary aberration.

The second implication concerns the level of generalization. Is it valid to discuss fertility decline in regional terms? Or should fertility analysis in Africa be regarded as no more than a set of unconnected country-specific studies? There is much to commend the second approach. The region exhibits greater cultural and economic diversity than, for instance, Latin America, the Arab states or South Asia; the empirical evidence for fertility change has to be assembled on a country-by-country basis; and it is totally untenable to assume that trends will be uniform across the region. Yet, to

* Centre for Population Studies, Department of Epidemiology and Population Sciences, London School of Hygiene and Tropical Medicine, 99 Gower Street, London WC1E 6AZ.

Nelson Onuoha died in a traffic accident in Nigeria in May 1993. This chapter is dedicated to the memory of a valued colleague and good friend.

treat each country in Africa as an isolated individual case-study would be to deny a massive body of evidence that there is a strong underlying regional patterning to fertility transition. The fertility decline in Europe and its associated ex-colonies is clearly distinct in its timing from trends in other regions. More recently, fertility trends in Latin America have shown a remarkable synchronicity, as have those in the Sino-influenced countries of East Asia. This regional imprint stems from the importance of cultural influences on the timing and speed of transition, that are often as strong, if not more so, than economic influences. Despite its internal diversity, sub-Saharan Africa possess features of social organization and cultural values that distinguish it from other major regions. While it is implausible to expect transition in those countries afflicted by war, civil strife and other natural and man-made disasters, it is reasonable to expect some degree of synchronicity in the African fertility transition.

Political changes in the last decade serve to reinforce this expectation. In 1980, few African governments expressed great concern about rates of population growth or gave serious support to the provision of family planning services. By 1990, political attitudes had changed substantially; many more countries had announced population policies and investment in family planning had increased. According to Mauldin and Ross (1991), sub-Saharan Africa recorded greater increases in the strength of family planning programmes in the 1980s than any other region. No doubt, pressure from international organizations played a part in this shift but much of the change stemmed from genuine indigenous concern about the effect of population growth on development. Of course, favourable government policies and programmes are no guarantee of successful demographic transformation but their existence greatly enhances the prospects for widespread fertility declines in Africa. In sum, it is reasonable to discuss fertility at a regional level. Documentation of a change in any specific country has implications for neighbouring countries. They are likely to share common languages and cultural traits that permit a ready flow of ideas and the spread of new models of behaviour.

We assess fertility trends in Africa by a review of published data and by the application of standard diagnostic tests to data tabulations specially prepared for the analysis. The task is made possible by a rapidly expanding body of evidence. Data sources are discussed in the next section. The more detailed analysis concentrates on those countries that have conducted one or more fertility surveys. We start by examining fertility trends derived from successive surveys and changes in median ages at first birth. Results of the classic P/F ratio technique are then analyzed. The analysis continues with the presentation of cohort parity progression ratios for countries that have conducted at least two relevant enquiries. This central demographic material is complemented by information on contraceptive use.

At the outset, it should be made clear that our aim is not to obtain the best possible estimate of fertility level and trend for each country with relevant data. This would require comprehensive evaluations of many data sets. Rather, by subjecting data from a number of countries to standard

screening and analytic procedures, we hope to identify regularities that will permit reasonably confident verdicts about the direction of fertility change, if not its precise magnitude. Such comparative analysis has a long history in demography and frequently has provided insights that had eluded analysts of data from a single country.

Sources of data

The pioneering study of African demography (Brass *et al.*, 1968) had few direct sources of information on fertility and mortality. It had to rely heavily on stable population analysis of age structures. Since that time, the detail and scope of the data available has improved steadily. Large sums of money have been invested in the African census programme and, in the 1970s, an increasing number of countries conducted more specialized single or multi-round demographic surveys. Towards the end of that decade and in the early 1980s, a fresh development occurred with the advent of the World Fertility Survey (WFS). Ten African countries participated in this programme, making possible for the first time analysis of birth histories collected at the national level. Under the successor to the WFS, the Demographic and Health Survey (DHS) programme, a further twelve fertility surveys were conducted in Africa during the period 1985 to 1990, and the number has continued to grow since then.

Though demographic data collection in the region has been dominated by large centrally funded programmes, other ad hoc national or quasi-national surveys should not be overlooked. Most notably, the Republic of South Africa has conducted two birth history surveys; Ethiopia undertook a Family and Fertility Survey in 1990; and Malawi had a Family Formation Survey in 1984. In addition the World Bank has supported surveys in Côte d'Ivoire, Ghana and Mauritania that collected a considerable amount of demographic data, though the measurement of standards of living was their main focus.

Table 1 summarizes the situation for countries with a population of one million or more. There are remarkably few countries that failed to conduct a census or national survey in the period 1985 to 1990. In terms of population size, Zaire is the most significant exception.

Internal evidence of changes in fertility rates: WFS v DHS

We start the main analysis with a simple comparison of WFS and DHS data. The collection of retrospective birth histories permits the calculation of age-specific fertility rates for past as well as more recent periods, though truncation of the data on older women limits the historical record. Table 2 shows the percent change in fertility rates cumulated to age 35 for ten WFS and fourteen DHS enquiries. For the WFS set, rates in the period 10 to 14 years prior to each survey are compared with the most recent quinquennium, 0 to 4 years prior. If changes of less than 10%

Table 1
Censuses and major sample surveys, Sub-Saharan Africa, 1960-1990

Region and country	1965-69	1970-74	1975-79	1980-84	1985-90
HORN OF AFRICA					
Sudan		1973	1979	1983	1990
Ethiopia			1981	1983	1986
				1984	1990
Somalia			1975	1980	1986
EAST & CENTRAL AFRICA					
Kenya	1969	1973	1977 1978 1979	1983 1984	1989 (1989)
Uganda	1969			1980	1989
Rwanda		1970	1978	1983	(1989)
Burundi	1965	1971	1979		1987
Zaire		1974		1984	
Tanzania	1967	1973	1978		1988
ZAMBEZI COUNTRIES					
Malawi		1972	1977	1982 1984	1987
Zambia	1969	1974		1980	(1990)
Mozambique		1970		1980	(1990)
Zimbabwe	1969			1982 1984	1987 1989
SOUTHERN AFRICA					
Botswana		1971		1981 1984	1988
Swaziland	1966		1976		1986
Lesotho	1966	1973	1976 1977		(1986)
South Africa		1970		1980	1985 1989
SAHEL					
Mauritania			1977	1981	1988 1990
Mali			1976		1987 1987
Niger			1977		1988
Chad					
Senegal		1971	1976 1978		1986 1988
Burkina-Faso			1975		1985
COASTAL STRIP					
Guinea				1983	
Sierra Leone		1974			1985
Liberia		1971 1974	1978	1984	1986
Côte d'Ivoire			1975 1979	1981	1986 (1988)
Ghana	1968	1970 1971		1980 1984	1988 1990
Togo		1970 1971		1981	1988
Benin			1979	1981	(1990)
WEST-CENTRAL AFRICA					
Nigeria	1966	1973		1982	1990
Cameroon			1976 1978		1987
Central African Republic			1975		1988
Gabon		1970		1981	
Congo		1974		1984	
Angola		1970			

Legend: Census, Birth history survey, Other survey. Unpublished results are in parentheses.
Sources: Hill (1990) and recent additions.

Table 2
Percent change in age-specific fertility cumulated to age 35: WFS v DHS

World Fertility Surveys: period 0-4 compared to 10-14 years prior to survey			Demographic and health surveys: period 0-3 compared to 8-11 years prior to survey		
Survey	Year	Change	Survey	Year	Change
Sudan (North)	1979	- 38	Sudan ¹ (North)	1990	- 33
Kenya	1978	- 9	Kenya	1988	- 14
Lesotho	1977	+ 3	Uganda	1989	- 6
Mauritania	1981	- 9	Burundi	1987	- 5
Senegal	1978	0	Zambia ¹	1992	- 16
Côte d'Ivoire	1980/81	+ 2	Zimbabwe	1988	- 18
Ghana	1981	- 7	Botswana	1988	- 22
Benin	1982	+ 4	Mali	1987	- 7
Nigeria	1982	+ 26	Senegal	1986	- 18
Cameroon	1978	+ 10	Liberia	1986	0
			Ghana	1988	- 7
			Togo	1988	- 11
			Nigeria	1990	- 17
			Cameroon	1990	- 8

¹ Periods of comparison are 0-4 and 10-14.
Sources: WFS, Goldman *et al.* 1985; DHS, Arnold and Blanc, 1990 and Country Reports.

are ignored, attention can be focused on three countries: Cameroon, Nigeria and Sudan (North). In Cameroon, a 10% increase in cumulated fertility is recorded. A detailed assessment by Santow and Bioumla (1984) concluded that this change was probably genuine and reflected declines in pathological sterility. For Nigeria and Sudan (North), similar detailed examinations detected serious defects in the data that accounted for much of the large apparent increase in Nigerian fertility and an even larger decline for Sudan (Morah, 1985 and Rizgalla, 1985). The overall impression from the WFS evidence is one of constant fertility. The number of surveys recording a decline is matched by the number recording an increase, and most of these differences are, in any case, small.

A very different overall impression is given by the DHS set. In all but one of these fourteen surveys, higher fertility is recorded in the more distant period than for the more recent one. Moreover the apparent declines are of appreciable size. In eight cases, the change exceeds 10% and it amounts to about 20% in Botswana, Senegal and Zimbabwe and over 30% in Sudan (North).

Could this striking difference in the results of the two survey programmes reflect different methodologies or data quality? In many key regards,

the procedures for collecting demographic data in the two types of survey are very similar. In both the WFS and DHS, a count of numbers of children ever born is taken first and this is followed by a more detailed birth history which starts with the first-born child. The contents of the birth histories are similar: name; sex; date of birth and/or age; survival status; and age at death. The only potentially important difference is that the WFS also collected information on abortions and still-births, while the DHS did not. All the evidence suggests that this divergence has little impact on the number of live-births reported (Jemai and Singh, 1987)

There is, however, one crucial difference between DHS and WFS collection procedures. The DHS core questionnaires contain a much longer battery of questions for each child aged less than five years, combined with anthropometric measurement. In some DHS enquiries, this characteristic has led to a pernicious form of motivated bias, that results in a deficit of four year old children and a surplus of five-year olds. Among the African surveys, this problem is particularly serious in Burundi, Liberia and Togo (Institute for Resource Development, 1990). It is because of this transference from age four to five that the DHS fertility trends, shown in Table 2, take the form of a comparison of rates in the period 0 to 3 and 8 to 11 years prior to each survey. By avoiding the deficit at year 4 and the surplus at year 5, distortions in the reported timing of births are reduced. It is uncertain, however, whether they are altogether eliminated. While there is little evidence that the ages of children who are less than four years old have been badly misrecorded, or that young children have been omitted, it is obviously possible that such errors have occurred, albeit on a much smaller scale. In conclusion, the DHS data collection procedures may be more vulnerable than WFS to underreporting of recent fertility. The evidence of constant fertility in the 1980s followed by widespread fertility decline in 1980s, derived from Table 2, is suggestive but by no means convincing.

Age at first birth

Rising ages at marriage played an important role in the Asian fertility transition, often preceding falls in marital fertility and contributing substantially to declines in overall fertility. In Africa, the measurement of marriage ages is particularly complex, both because there are many different types of partnership and because entry into partnerships may be a long and gradual process rather than a precise event. This process may involve child-bearing, thus further complicating the relationship between marriage and the onset of fertility. Thus postponement of marriage in Africa may not have the direct consequences for the age pattern of childbearing that are typically found in Asia.

These problems of definition and interpretation can be circumvented by analysis of age at first birth rather than age at marriage. In Table 3, cohort changes in the median ages at first birth are presented for WFS and DHS enquiries. Once again, a difference is apparent between the earlier

WFS surveys and the later DHS surveys, though it is less marked than was the case for fertility trends. In most of the WFS enquiries, women aged 20 to 24 reported later ages at first birth than women aged 30 to 34. However, the trend towards postponement of motherhood exceeds half a year in only three surveys.

Table 3

Absolute changes in median ages at first birth recorded by cohorts aged 20-24 and 30-34 years: WFS v DHS

World Fertility Surveys		Demographic and Health Surveys	
Survey	Change in years	Survey	Change in years
Sudan (North)	+ 3.4	Sudan (North)	+ 3.6
Kenya	+ 0.3	Kenya	+ 1.0
Lesotho	+ 0.2	Uganda	+ 0.6
Mauritania	+ 1.2	Burundi	+ 0.8
Senegal	+ 1.1	Zambia	+ 0.9
Côte d'Ivoire	- 0.3	Zimbabwe	+ 0.7
Ghana	- 0.4	Botswana	+ 0.4
Benin	+ 0.5	Mali	- 0.2
Cameroon	- 0.4	Senegal	0
		Liberia	- 0.9
		Ghana	+ 0.7
		Togo	+ 0.8
		Nigeria	+ 0.7
		Cameroon	- 0.2

Source: WFS, Goldman *et al.* 1985; DHS, Country Reports.

The set of DHS results suggests a much more pronounced shift in median ages at first birth. The majority of these enquiries show a rise of over half a year and the trend towards a later onset of childbearing is apparent in all the sub-regions of the continent. Could this reflect differences in methodology or data quality between the two surveys programmes? We are sceptical of this possibility, because we can identify no plausible grounds for suggesting that DHS estimates of the timing of first births might be subject to a greater upwards bias than WFS estimates. Indeed, the problem of backwards displacement of births in some DHS enquiries, discussed in the previous section, would have the opposite effect.

It seems reasonable to conclude, therefore, that there was an accelerated trend towards postponement of first births throughout much of sub-Saharan Africa in the 1980s. The possible reasons underlying this development are beyond the scope of this chapter. No doubt the rise in the educational level of young women is an important consideration, as perhaps is the economic recession and falling living standards. Two im-

portant conclusions to be drawn for the purposes of our investigation are that many African fertility regimes are changing, rather than static, and that delayed attainment of motherhood by young African women in the 1980s may have depressed period fertility rates.

Comparison of parity (P) and current fertility (F)

Under conditions of constant fertility the mean number of children ever born should correspond closely to the cumulated age-specific fertility rates for each age group of women. This principle underlies the classic P/F ratio technique designed by William Brass primarily as a means of both assessing the quality of African fertility data and adjusting them (Brass *et al.*, 1968). When fertility is constant and data contain no errors, P/F ratios for each age group should be close to unity. Departures from unity indicate data errors or changes in fertility. For instance, ratios that are close to 1.0 for younger age groups but progressively decline at older age groups often indicate omission of children ever born by older women. Conversely, P/F ratios that are consistently above 1.0 suggest that underreporting of recent births (F) has occurred.

When the assumption of constant fertility is no longer tenable, interpretation of P/F ratios becomes more complex. The classic sign of marital fertility decline is a set of ratios that are close to unity at younger age groups but rise above 1.0 among older age groups, indicating a reduction in recent fertility among women over the age of 30 who have already born several children. This pattern can be distorted by omission of children ever born, however, and, in Africa, the assumption that the onset of fertility control will be most marked for women aged 30 to 39 may not be valid. As we have already seen, the African fertility transition may well involve postponement of motherhood, thereby depressing fertility rates at young ages. Moreover, the cultural importance of birth spacing in Africa may lead to the use of birth control earlier in marriage than was typical of Asian or Latin American populations. Accordingly, while a set of ratios that is high for all ages rouses suspicion of underreporting of recent births, it may also be consistent with fertility decline that is uniform across age groups.

The P/F ratios in Table 4 need to be interpreted with these caveats in mind. Four main patterns may be discerned. Group A comprises data sets where P/F ratios are reasonably close to 1.0 for all age groups. The most plausible diagnosis is that the data are of reasonable quality and that no major change in fertility has taken place. The second main group (B) contains data sets where ratios are high at younger age groups but then decline. The most obvious explanation is that the data suffer from underreporting of current fertility which gives rise to high ratios at young ages. The ratios decline because of omission of children ever born by older women. The main alternative explanation is that fertility has declined at younger but not at older ages: a possible but, in most cases, an unlikely scenario.

Only three surveys (Group C) display the classic signs of declining marital fertility, with an upwards gradient in ratios. An additional seven

Table 4
P/F ratios and unadjusted Total Fertility Rates

Group A		20-25	25-30	30-35	35-40	40-45	45-50	Unad. TFR
Kenya	1978	1.00	1.04	1.06	1.00	0.96	0.95	7.92
Uganda	1989	1.10	1.03	1.07	1.10	1.09	1.09	7.30
Burundi	1987	1.12	1.08	1.04	1.05	1.06	1.04	6.95
Malawi	1984	0.98	0.92	0.90	0.95	0.97	0.95	7.71
Mali	1987	1.04	1.10	1.06	1.07	1.10	1.11	6.93
Botswana	1984	1.08	1.06	1.06	1.07	1.06	1.05	6.46
Senegal	1978	0.99	1.08	1.05	0.96	0.95	0.96	7.15
Liberia	1986	1.08	1.01	0.98	1.00	1.00	0.98	6.61
Ghana	1981	1.05	1.02	1.06	1.09	1.07	1.06	6.26
Ghana	1988	1.04	1.04	1.08	1.10	1.12	1.11	6.40
Benin	1982	0.98	0.99	1.00	0.95	0.92	0.90	7.08
Group B								
Sudan (North)	1979	1.17	1.19	1.18	1.09	1.01	0.99	6.02
Ethiopia	1990	1.27	1.20	1.14	1.06	1.05	1.03	6.63
Uganda	1969	1.36	1.23	1.15	1.03	0.98	0.96	5.35
Malawi	1982	1.26	1.24	1.22	1.20	1.18	1.13	6.68
Swaziland	1976	1.22	1.24	1.23	1.18	1.16	1.13	5.70
Mauritania	1981	1.34	1.27	1.13	1.09	1.06	1.04	6.25
Nigeria	1982	1.12	1.04	0.99	0.93	0.86	0.82	6.34
Congo	1984	1.37	1.33	1.26	1.19	1.15	1.14	4.95
Group C								
Kenya	1988	1.10	1.12	1.12	1.18	1.21	1.22	6.71
Botswana	1988	1.10	1.15	1.21	1.25	1.22	1.20	5.00
Sudan (North)	1990	1.13	1.26	1.40	1.50	1.53	1.55	4.96
Group D								
Zimbabwe	1984	1.16	1.08	1.10	1.13	1.15	1.18	6.52
Zimbabwe	1988	1.16	1.17	1.16	1.18	1.21	1.22	5.66
Swaziland	1986	1.56	1.52	1.51	1.53	1.51	1.50	4.33
Senegal	1986	1.08	1.08	1.13	1.13	1.11	1.10	6.62
Togo	1988	1.04	1.12	1.13	1.10	1.13	1.11	6.59
Nigeria	1990	1.06	1.15	1.15	1.12	1.12	1.08	6.04
Cameroon	1990	1.13	1.10	1.10	1.11	1.11	1.11	5.97
Group E								
Cameroon	1978	0.96	0.96	0.94	0.90	0.87	0.85	6.39
Sources: WFS, CPS or DHS surveys, except: censuses in Uganda (1969), Swaziland (1976 and 1986) and Congo (1984); Family and Fertility Survey in Ethiopia (1990) and Demographic Survey (1982) and Family Formation Survey (1984) in Malawi.								

surveys (Group D) exhibit a pattern that is consistent both with under-reporting of current fertility and with a genuine decline that has affected most age groups as the P/F ratios are constantly high across all ages. Finally, there is the maverick pattern found in the Cameroon survey of 1978, where ratios are below 1.0 at younger age groups and fall further. Rising fertility is the most likely explanation.

It is of special interest to consider changes in P/F ratios for the eleven countries with more than one data set. For Kenya and Botswana, there is convincing evidence of decline between the two surveys. In both cases, P/F ratios calculated from the earlier survey are rather constant across age groups and close to unity. The later survey exhibits rising ratios, consistent with a decline in recent fertility. In Zimbabwe, both the 1984 and 1988 surveys give sets of ratios that suggest a decline in fertility that is rather even across age groups. Ratios tend to be higher in 1988 than in 1984.

The remaining nine countries yield results that contain less obvious indications of fertility decline. In Ghana, the 1981 and 1988 surveys give rather similar ratios, that are constant across age groups. A verdict of little change in fertility seems justified. Similarly in Uganda and Malawi, there is little suggestion of decline. The 1969 Ugandan census probably suffers from severe reference period error and omission of births by older women. The DHS enquiry appears to have obtained estimates of better quality. There is no evidence of omission of births by older women, but slight under-reporting of recent fertility is implied by the P/F ratios. In Malawi, the 1982 demographic survey probably suffers from rather severe backwards displacement of recent births. The birth history survey in 1984 provides estimates of current and cumulative fertility that are more mutually consistent.

In the remaining five countries – Swaziland, Senegal, Nigeria and Cameroon – rather sharp increases in P/F ratios are observed in the more recent compared to the earlier enquiry. This pattern is consistent with a decrease in fertility though, only in Sudan (North), do ratios rise across age groups in a manner that is highly suggestive of fertility control in the middle and later phases of marriage.

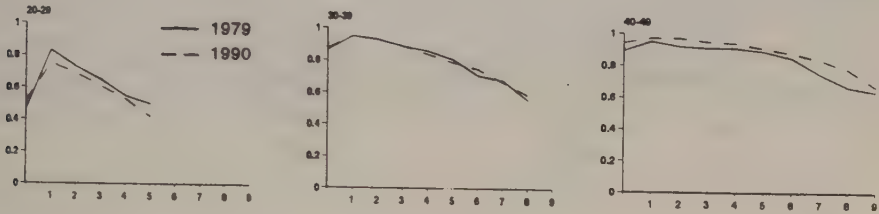
To sum up, the P/F ratio analysis yields evidence of fertility decline in the late 1980s for Kenya, Botswana, Zimbabwe and Sudan (North). In a further four countries, the ratios offer weaker evidence of recent decline. In none of the remaining data sets, is there clear evidence of decline. In the majority of such instances (mainly Group A), the data appear reasonably sound and the verdict of no major fertility change can be advanced with some confidence. In other cases (mainly Group B), the ratios suggest that there are serious flaws in the reporting of current and/or cumulative fertility. It is possible that the latter may have concealed signs of fertility decline and thus a verdict of no change is more tentative than for Group A.

Cohort parity progression ratios

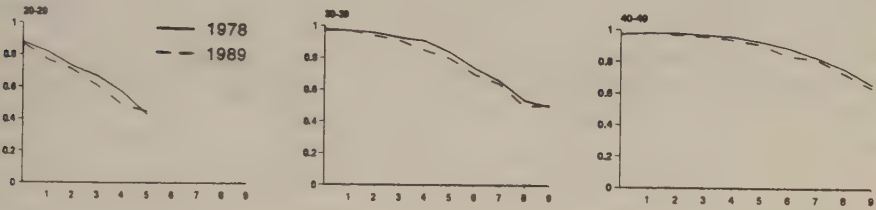
In this section, we assess fertility change by a comparison of cohort parity progression ratios for countries with two or more data sets. In most cases, WFS and DHS enquiries constitute the data sources. The two main exceptions are Swaziland where data from the 1976 and 1986 censuses were available and Zimbabwe for which three sources were available: the 1969 and 1982 censuses and the 1988 DHS. The findings are presented in Figure 1 for three broad cohorts of women. For the oldest cohort, the results are a close approximation to completed fertility. For the two younger co-

horts, however, family formation is still in progress and any differences may reflect timing of births rather than the ultimate number that will be born.

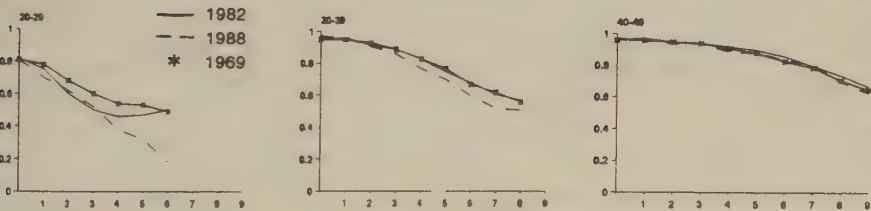
Sudan (N.)



Kenya



Zimbabwe



Botswana

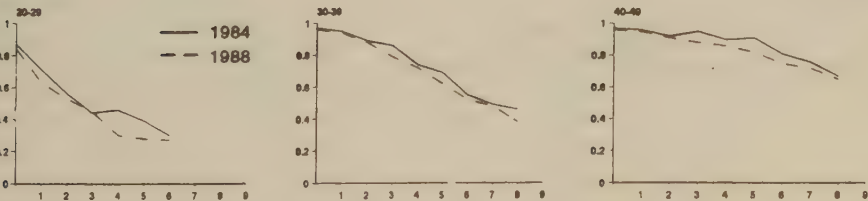
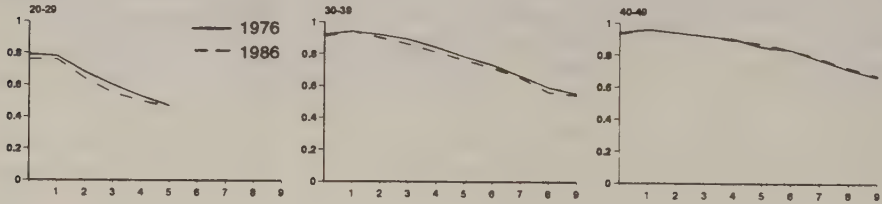


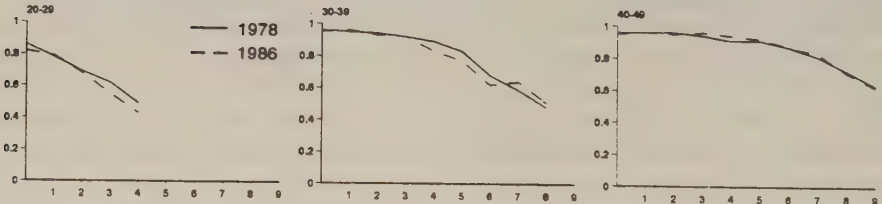
Figure 1.1
Cohort parity progression ratios: Sudan (North), Kenya, Zimbabwe and Botswana

The most convincing evidence of fertility decline is apparent for Kenya, Zimbabwe and Botswana. In Kenya, the progression ratios for the 1989 survey (indicated by the broken line) are consistently lower than those for

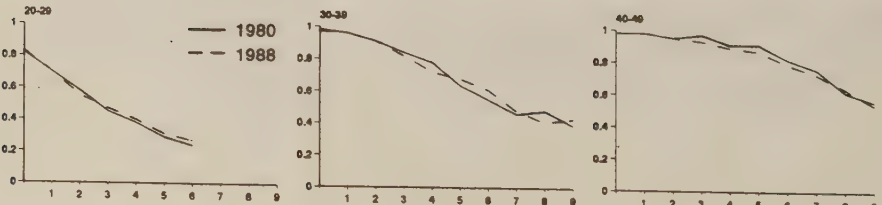
Swaziland



Senegal



Ghana



Cameroon

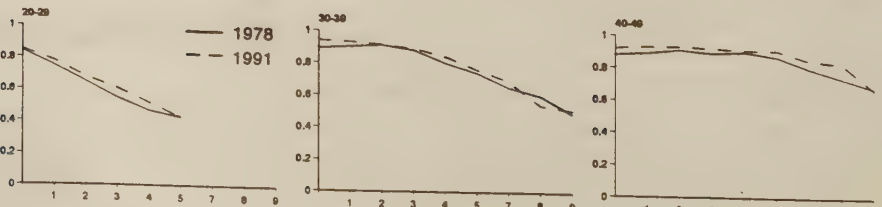
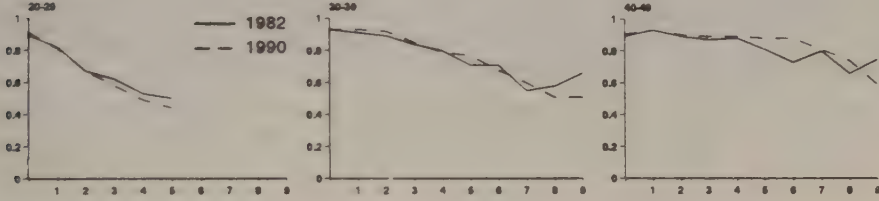


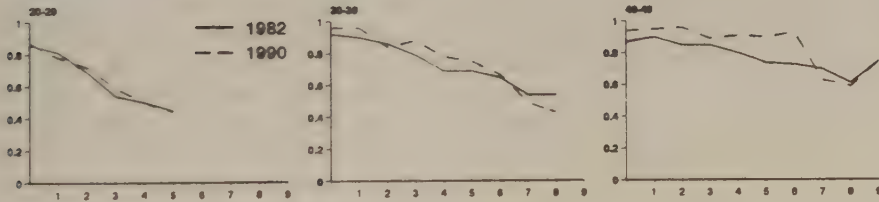
Figure 1.2
Cohort parity progression ratios: Swaziland, Senegal, Ghana
and Cameroon

the earlier survey in all three cohorts. Greater omission of children ever born in 1989 than in 1978 is unlikely to be an explanation because any such defect would surely be more pronounced among older than younger

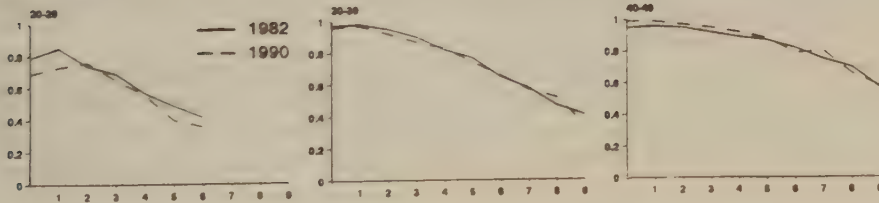
North-east



North-west



South-east



South-west

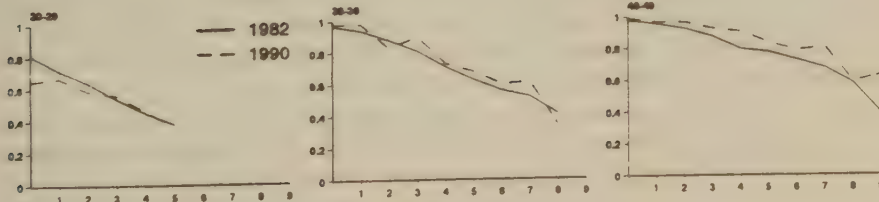


Figure 1.3
Cohort parity progression ratios: regions of Nigeria

women. Figure 1 thus provides strong evidence of an appreciable fall in Kenyan fertility that has affected all age groups.

In Zimbabwe, the results for the oldest cohort – those aged 40 to 49 years are identical, indicating constant fertility. For the middle and younger cohorts, however, the DHS in 1988 yields appreciably lower probabilities of parity progression than the two censuses. Underreporting in the survey is an unlikely explanation for this pattern and a conclusion of fertility decline therefore can be advanced with some confidence.

The results for Botswana are remarkable in view of the short interval between the two surveys. For all three cohorts, lower ratios are recorded in 1988 than in 1984. It is, of course, possible that omission of children was more pronounced among all groups in the later than in the earlier survey, but this is inherently unlikely.

The results for the remaining country (Sudan) on the first panel of Figure 1 are surprising. The P/F ratios analysis gave indications of a substantial fertility decline at older ages. This diagnosis receives no confirmation from a cohort-based approach. For women aged 40 to 49 years, the later survey shows higher progression ratios than the earlier survey and for the cohort aged 30 to 39 years there is no difference between the two surveys. Better reporting of children ever born in 1990 than in 1979 is probably responsible for the pattern observed for the oldest cohort. To the extent that the 1990 DHS also gathered better quality data among women aged 30 to 39, a genuine fall in cohort fertility may have been masked. This possibility must remain speculative. However for the youngest cohort, a drop in fertility is observed. The steep rise in age at first birth (see Table 3) is consistent with the parity-progression evidence, though it is surprising that progression to first birth appears to have remained constant between 1979 and 1990.

In Swaziland and Senegal, the findings suggest that a slight fall in fertility has taken place among women aged 20 to 40 but not among older women. In Ghana, there is no clear difference between the results of the 1980 and 1988 surveys while in Cameroon, higher ratios are recorded in 1991 than in 1978.

The last panel of Figure 1 shows progression ratios for Nigeria, disaggregated by region because of the huge cultural and economic diversity of this country. The most notable feature is that the DHS enquiry in 1990 gives higher progression ratios than the 1982 WFS among women aged 40 to 49. For three of the four regions, this observation also holds true for the 30 to 39 cohort. It appears, therefore, that reporting of children ever born was appreciably better in 1990 than in 1982.

For the cohort aged 20 to 29, there is little evidence of change in the two northern regions but in south-east and south-west Nigeria the comparison between 1982 and 1990 suggests that fertility may have declined. Progression to first birth has dropped steeply in both regions. In the south-west, progression to second and to third births is also slightly lower in the later survey while, in the south-east, higher order ratios also tend to be

lower in 1990 than in 1982. These results are unlikely to reflect differential omission of children and thus constitute reasonable evidence of fertility change among younger women in these two regions of the country. Clearly, postponement of motherhood is the major expression of change but it also appears possible that second and third births are being delayed.

To sum up, this examination of changes in cohort parity progression ratios has yielded evidence of appreciable fertility declines in Kenya, Zimbabwe and Botswana. In Swaziland and Senegal, slight falls in fertility among women aged 20 to 39 are suggested, and in Sudan (North) and south-east and south-west Nigeria, fertility may have dropped among women aged less than 30 years. In Ghana, there are no signs of change and, in Cameroon, fertility may have increased.

Contraceptive use

The world wide declines in fertility over the last 40 years have been fuelled primarily by increased resort to contraception by married couples, though, as noted earlier, rising age at marriage has also made an appreciable contribution particularly in Asia. The role of abortion has been significant in some countries but has proved difficult to document. Large-scale sample surveys have a good record in furnishing reasonably reliable information on the use of contraceptive methods by couples; trends in the use of specific modern methods are usually plausible, though this is less true of traditional methods. Moreover, there is a high correlation between levels of use and fertility rates.

For these reasons, survey data on levels of contraceptive practice in African population constitute a critically important type of evidence in any attempt to review fertility trends. Table 5 summarizes the results from nationally representative surveys in terms of the percentage of currently married women who reported current use of any method of contraception. Perhaps the most important feature of these data is the high levels of reported use among the black population of the Republic of South Africa. According to Mostert's (1991) analysis of the 1987-89 survey, the total fertility rate of the black population was 4.6 in the late 1980s. In the absence of detailed published tabulations it is impossible to evaluate this estimate but, clearly, this country is in the forefront of fertility transition.

In Kenya, Zimbabwe and Botswana, the contraceptive use data further buttress earlier evidence of appreciable falls in fertility in these countries. The next highest level of reported use is found in Swaziland, which strengthens the impression from the parity progression analysis that a modest drop in fertility has occurred. For the remaining eleven countries with recent data, levels of use are well below 20%, consistent with constant or with modest changes in fertility. The figure for Sudan suggests that any decline in that country may arise primarily from marriage postponement rather than fertility regulation. Similarly the results from the 1990 Nigerian DHS enquiry lend no further support to the tentative conclusion from the cohort parity progression analysis that fertility may have declined among

Table 5
Percentage of currently married women using any method of contraception

	Period		
	1975-79	1980-84	1985-90
Sudan	5		9
Ethiopia			4
Kenya	6	17	27
Uganda			5
Rwanda		10	
Burundi			9
Malawi		7	
Zambia			15
Zimbabwe		38	43
Botswana		28	33
Swaziland			21
Lesotho	5		
South Africa (black pop)			47
" " (black pop excl. "homelands")		44	53
Mauritania		1	
Mali			5
Senegal	4		11
Liberia			6
Côte d'Ivoire		3	
Ghana	10		13
Togo ¹			12
Benin ¹		9	
Nigeria		5	6
Cameroon	2		16

¹ Excluding abstinence.
Sources: WFS, CPS and DHS surveys except: Ethiopia, *Family and Fertility Survey*, 1990; Rwanda, *Enquête nationale sur la fécondité*, 1983; Malawi, *Family Formation Survey*, 1984; Swaziland, *Family Health Survey*, 1988; South Africa, *Fertility Survey, 1982 and Demographic and Health Survey, 1987-89*.

women aged under 30 years. In the south-east region, contraceptive prevalence is 9%, though is somewhat higher in the south-west (15%).

A more detailed analysis by Onuoha (1993) of fertility and its proximate determinants in Senegal and Ghana, however, serves as a warning that we should not ignore the possible impact of proximate determinants of fertility apart from contraception. In both countries, he finds evidence of an increase over time in the fertility-depressing effect of the post-partum variables. Hitherto, most scholars have assumed that lengths of post-partum abstinence and lactational amenorrhoea will diminish under the onslaught of modernizing influences. This appears not to be the case, at least in these countries. Onuoha's analysis raises the interesting possibility that west African fertility may fall more than might be suggested by levels of contraceptive use. In Senegal, for instance, he adduces convincing evidence of a modest fall in fertility at the national level, which is much more pronounced among the educated and urban strata of the population. In Ghana, on the other hand, he found no signs of fertility decline in the 1980s.

Conclusions

For seventeen African countries, fertility data from censuses or surveys are available for the period 1985 to 1990. In all but two cases (Tanzania and South Africa), we have been able to subject the data to at least one evaluative test. For a smaller set of countries, the data from two or more enquiries have been examined for evidence of change. Our substantive conclusions are contained in Table 6, which summarizes fertility levels and trends in Africa since 1965. All the estimates up until 1980 are taken from Althea Hill's comprehensive review of Africa demography (Hill, 1990). Estimates for the period 1980 to 1984 are a mixture of Hill's work and our own results, while those for the period 1985 to 1990 are predominantly derived from our analyses. For countries where no clear evidence of data defects was found, our total fertility rate estimates are unadjusted. In other countries, we have used P/F ratios to derive adjusted rates. A comparison of rates in Table 6 with the unadjusted rates of Table 4 reveals which rates have been adjusted in this manner. It should be stressed again that our intention in this chapter was not to reach a best possible estimate for each country; this task would have required a series of detailed case studies. No doubt, some the estimates shown in Table 6 will prove to be incorrect. However, the broad impression of fertility change in Africa is likely to be valid.

What picture emerges from Table 6? The first point to note is that about half of all large African countries have no recent data by which fertility can be assessed. In some cases, these gaps will be filled shortly by DHS enquiries (e.g. Zambia, Malawi, Côte d'Ivoire). In other cases, civil unrest or other problems make it unlikely that a national census or survey can be conducted successfully in the near future. The recent demographic evidence for Africa is thus selective; countries that have chosen to participate in the DHS programme, or have published recent survey or census data, are perhaps more likely to have experienced fertility decline than other countries.

Among the seventeen countries with recent relevant data, our analysis suggests that period fertility declined in the 1980s in about half of them. The declines in Kenya, Zimbabwe and Botswana are clear-cut and caused primarily by rising contraceptive use. This diagnosis is also true for the black population of South Africa though lack of well documented evidence precludes any statements about the magnitude of decline. We also conclude that appreciable declines have occurred in Sudan (North), primarily because of rising ages at marriage.

In Tanzania, Swaziland, Senegal and Nigeria, the verdict is one of modest decline. For Tanzania, the analysis of the 1988 census by Chuwa *et al.* (1991) adduces convincing evidence of a slight decline in fertility that is largely confined to urban areas and fuelled primarily by rising ages at marriage. In Swaziland, we conclude from our analysis of the 1976 and 1986 censuses that fertility has fallen slightly among younger women. This

Table 6
Total fertility rates: estimates for selected African countries, 1965-1990

Region and country	1965-69	1970-74	1975-79	1980-84	1985-90
HORN OF AFRICA					
Sudan (North)	—	6.8	7.1	—	6.2
Ethiopia	6.4	—	—	—	7.9
Somalia	—	—	7.1	7.4	—
EAST & CENTRAL AFRICA					
Kenya	7.6	—	7.9	7.7	6.7
Uganda	7.1	—	—	—	7.3
Rwanda	7.7	—	8.0	8.4	—
Burundi	6.2	—	6.5	—	7.5
Zaire	—	—	—	—	—
Tanzania	6.6	6.3	6.9	—	6.5
ZAMBEZI COUNTRIES					
Malawi	—	7.8	7.8	7.8	—
Zambia	7.0	7.0	6.8	—	—
Mozambique	6.5	—	—	—	—
Zimbabwe	8.0	—	—	6.5	5.7
SOUTHERN AFRICA					
Botswana	—	6.5	—	6.5	5.0
Swaziland	6.9	—	7.0	—	6.5
Lesotho	—	—	5.6	—	—
S. Africa (Black pop.)	—	—	—	—	4.6
SAHEL					
Mauritania	—	—	—	7.9	—
Mali	—	—	—	—	7.6
Niger	—	—	—	—	—
Senegal	—	6.4	7.7	—	7.2
Burkina-Faso	—	6.6	—	6.5	—
COASTAL STRIP					
Guinea	—	—	—	—	—
Sierra Leone	—	6.4	—	—	—
Liberia	—	6.0	—	—	6.6
Côte d'Ivoire	—	—	7.0	7.4	—
Ghana	7.1	—	—	6.4	6.4
Togo	6.6	—	—	—	7.4
Benin	—	—	—	7.1	—
WEST-CENTRAL AFRICA					
Nigeria	—	—	—	6.3	6.0
Cameroon	—	—	6.5	—	6.6
Central African Rep.	—	5.0	—	—	—
Gabon	—	—	—	—	—
Congo	—	6.0	—	6.6	—
Angola	—	—	—	—	—

Sources: Althea Hill (1990) and recent estimates by authors, except for Tanzania (Chuwa *et al.*, 1991) and South Africa (Mostert, 1991).

diagnosis is consistent with reported contraceptive use in a 1988 survey. In Senegal and Nigeria, conclusions have to be tentative but, in both cases, we suspect that modest falls in fertility have occurred among younger wo-

men. In Nigeria, this change is restricted to the south-west and south-east regions of the country.

In remaining countries, for which recent data are available – Ethiopia, Uganda, Burundi, Mali, Liberia, Ghana, Togo, and Cameroon – we have detected no convincing evidence of fertility decline.

Does this very mixed picture justify any claim that sub-Saharan Africa stands on the brink of widespread fertility transition? At the very least, the scepticism about prospects of fertility decline in Africa, that was so prevalent until recently, has lost its credibility. We anticipate that, in east and southern Africa, fertility declines, that are already underway in several countries, will spread to other states. In west and central Africa, the outlook is more uncertain. The experience of Ghana serves as a warning that fertility regimes in this sub-region may be rather impervious to change. Despite relatively high educational standards, a large urban population and some government support for family planning, it appears that Ghana experienced no fall in fertility during the 1980s. This stability of childbearing patterns is even more surprising when the severe economic recession of the late 1970s and early 1980s is taken into account. Why this combination of an educated, rather urbanized population whose living standards were threatened did not translate into widespread falls in fertility remains a mystery. It is also uncertain whether this resilience of Ghanaian childbearing patterns applies to other countries of west Africa.

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ABSTRACT

Fertility trends in sub-Saharan Africa are assessed by a review of published data and by the application of standard diagnostic tests to data tabulations specially prepared for the analysis. The more detailed analysis concentrates on those countries that have conducted one or more fertility surveys. Estimates of the total fertility rate are compiled for 17 African countries for the period 1985-1990 and compared with earlier estimates compiled largely by Althea Hill.

Comparison of WFS and DHS birth histories reveals that, while the overall impression from the WFS is of constant fertility and modest increases in ages at first birth, the DHS apparently provides evidence of both widespread fertility decline and postponement of first births in the 1980s. On the other hand, P/F ratio analysis only yields clear evidence of fertility decline in the late 1980s for Kenya, Botswana, Zimbabwe and Sudan (North) together with weaker evidence of recent decline in Swaziland, Senegal, Nigeria and Cameroon. There is little indication of falls in fertility in the remaining eleven countries considered. Changes in cohort parity progression ratios in countries with two sets of data provide corroborating evidence of appreciable fertility declines in Kenya, Zimbabwe and Botswana. In Swaziland and Senegal, slight falls in fertility among women aged 20 to 39 are suggested, and in northern Sudan and southern Nigeria, fertility may have dropped among women aged less than 30 years. In Ghana, there are no signs of recent change and in Cameroon, fertility may have increased. Finally, data on current use of any method of contraception are only consistent with substantial fertility decline in Kenya, Zimbabwe, Botswana, Swaziland and South Africa.

It is concluded that fertility has declined substantially during the 1980s in Kenya, Zimbabwe, Botswana, South Africa and Sudan (North); it has declined somewhat in Tanzania, Swaziland, Senegal and Nigeria; but it has not declined in the other eight countries with recent data. Thus, the scepticism about prospects of fertility decline in Africa, that was so prevalent until recently, has lost its credibility. We anticipate that, in east and southern Africa, fertility decline is likely to spread to further countries. In west and central Africa, however, the outlook is more uncertain. Moreover, we would not expect fertility to begin to fall in those countries afflicted by war, civil strife and other disasters.

Is the Current Decline in Infant and Child Mortality in Sub-Saharan Africa a Sign of Future Fertility Changes?*

Magali BARBIERI**

Africa south of the Sahara is lagging far behind other regions of the world in terms of its demographic transition. Sub-Saharan Africa is characterized by very low expectations of life at birth and population growth rates and levels of fertility and infant and child mortality that are higher than anywhere else. What the demographic future holds in store for the sub-continent is impossible to predict as many different scenarios are possible. Sub-Saharan Africa thus remains the great unknown in demographic projections for the XXIst century.

Mortality levels have declined considerably in most African countries over the last twenty or thirty years (Hill, 1991). In the history of the industrialized world and, more recently, in other continents of the third world, reductions in mortality of similar proportions have generally heralded an irreversible decline in fertility in the short or the long term; the relationship has been so consistent that the theoreticians of the demographic transition (Chesnais, 1986; Coale and Hoover, 1958; Landry, 1909; Notestein, 1945) were moved to postulate that a decline in mortality, and more particularly in infant and child mortality, was a prerequisite for a downward trend in fertility behaviour.

The aim of this analysis is to determine whether sub-Saharan Africa will follow the lead set by other continents: will reductions in infant and child mortality lead, after an as yet still indeterminate time-lag, to a gradual lowering of fertility? With this in mind we will estimate the levels and trends of childhood mortality and fertility, separately at first and then jointly before finally analyzing the possible interactions between the two trends

* Translated by Isabelle Wallerstein.

** Institut national d'Etudes démographiques, 27 rue du Commandeur, 75014 Paris, France.

while remembering that the final question to be answered is: "Childhood mortality in sub-Saharan Africa is declining, does this herald a decline in fertility?"

The Demographic and Health Surveys

The Demographic and Health Surveys (DHS) programme was implemented to remedy the lack of recent and reliable data on the health of children in developing countries. Methodologically speaking the DHS programme was designed along the same lines as the World Fertility Survey. All participating countries used the same core questionnaire supplemented by a varying number of optional modules covering specific items¹. The project was undertaken by a private concern, the Institute for Resource Development, and financed by USAID.

By the end of the first phase of the DHS programme, launched in 1984, 35 surveys had been completed, eleven of them in sub-Saharan Africa. The eleven countries taking part were Senegal, Ghana, Togo, Liberia, Mali, Nigeria (only Ondo State), Uganda, Burundi, Kenya, Zimbabwe and Botswana. Ondo State, Nigeria, was not included in this analysis as childhood mortality levels could not be estimated from the data collected for periods of more than five years prior to the survey date.

The Demographic and Health Surveys have several advantages over other data sources available for sub-Saharan Africa: the data are comparable from one country to another; they are among the most recent – and sometimes the only – data available; they are relatively reliable. The fact that the data allow the precise estimation of demographic indicators for the period 1985 to 1990 is of particular importance: in the few countries where fertility levels have declined the trend is a very recent one and would not have transpired with less recent data.

DHS data is of better quality than other sources of demographic data available for most of the region (civil registration, censuses, etc.). Moreover these surveys are representative at the national level which gives them the edge over the small-scale surveys often available for the recent past and over the data produced by population laboratories such as those in Senegal. The samples consist of between 4,000 and 7,000 women aged 15 to 49 years in each country. The quality of DHS data is not impeccable however. The problem of inaccuracies in dating and the omission of demographic events (births and deaths) is especially crucial to our analysis.

The graphs in Figure 1 use data drawn from the maternity histories in the DHS of each of the ten countries. They show number of births for each year prior to the survey (with the survey date as the reference). If one goes back too far in time (about ten years) the number of births declared becomes negligible. The countries studied have been divided into two graphs for the sake of clarity.

¹ AIDS module, men module, anthropometry module for example.

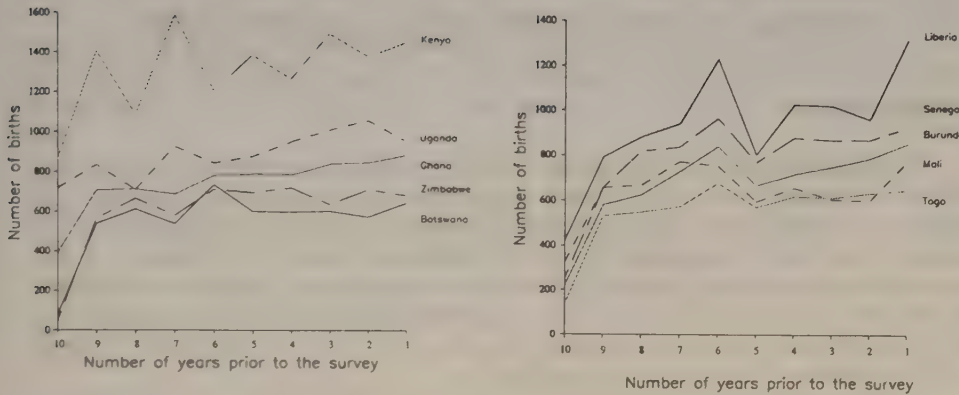


Figure 1
Number of births in each country DHS by year prior to the survey

The most striking feature of the graphs is the sudden drop in the curves five years prior to the survey. This is especially clear for the countries in the first graph and is the result of births having been shifted from the fifth to the sixth year prior to the survey. Fieldworkers were required to ask many more questions for children born less than five years prior to the survey. They therefore tended to shift back by one year those births that had taken place five years before in order to lighten their work load.

An error in the distribution of births can lead to considerable bias in the analysis of fertility trends. In those countries where this has occurred most noticeably (Liberia, Senegal, Burundi, Togo), a comparison of fertility rates 1-5 years and 6-10 years prior to the survey shows a decline in large part attributable to this shift in dates of birth. The best way of limiting the problem is to place all births having taken place five and six years prior to the survey into the same period in the hope that the numbers will even out. This is why childhood mortality trends and fertility trends were grouped into three three-year periods: 1-3 years, 4-6 years and 7-9 years prior to the survey.

7-9 years was chosen as the earliest reference period as a compromise between the need for reliable data and the need to observe demographic trends over a sufficiently long period for any changes in fertility patterns to show up with as little random fluctuation as possible².

*
* *

² It has been noticed that in retrospective surveys the further back in time an event has occurred the more likely it is to be reported inaccurately.

TRENDS IN INFANT AND CHILD MORTALITY

Methodology

We decided to use a childhood mortality rate covering the period from birth to 26 months so as to reduce the problems caused by censoring. 26 months was chosen as our cut-off point to avoid figures subject to age heaping (such as 24 months). Similarly, because there is a tendency to declare children as having died at 12 months when they actually died either just before (at 10 or 11 months), or just after (at 13 or 14 months), an early infant mortality rate was used covering the period from birth to eight months instead of the first 12 months.

The mortality indicators were calculated using data from the birth histories. The probability of dying between birth and 26 months was estimated for each birth cohort to show the trend in mortality for the ten years prior to the date of the survey. A three-year moving average (two-year at each end of the period) was used to limit the random fluctuations due to the smallness of the samples. The trend in mortality at 0-26 months estimated using this approach is shown in Figure 2. To obtain trends in the age struc-

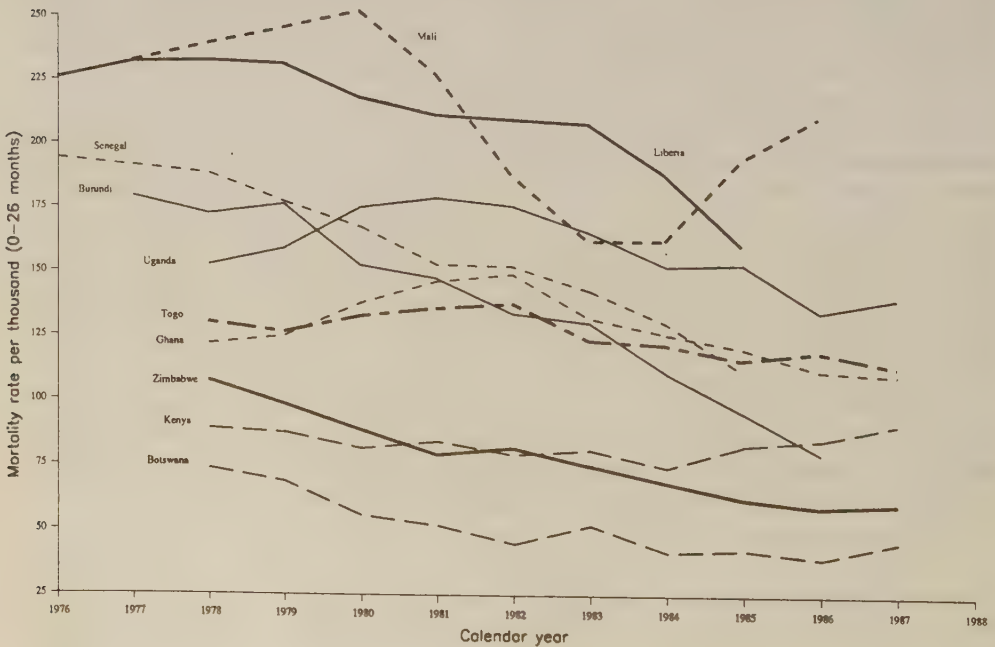


Figure 2
Mortality trends during the 10-year period prior to the survey
(three-year moving average)

ture of mortality, probabilities of dying were also calculated for 0-8 months, 9-26 months and 0-26 months (Tables 1 to 3) for three three-year birth cohorts: children born 1 to 3 years, 4 to 6 years and 7 to 9 years prior to the survey. These probabilities are summary measures of the trend in mortality in each country and were used to estimate the decline in mortality between the periods 7-9 and 4-6 years, 4-6 and 1-3 years, and 7-9 and 1-3 years.

Table 1
Probability of dying between 0 and 8 months by country
and by period prior to the survey

Country	Probability per thousand			Decline in %		
	7-9 years	4-6 years	1-3 years	7-9 to 4-6	4-6 to 1-3	7-9 to 1-3
Botswana	35.5	29.2	33.8	- 17.57	15.53	- 4.77
Burundi	91.6	85.0	56.4	- 7.20	- 33.68	- 38.46
Ghana	84.9	71.6	70.1	- 15.76	- 1.96	- 17.41
Kenya	57.9	49.9	62.1	- 13.87	24.33	7.09
Liberia	165.5	143.7	132.6	- 13.15	- 7.73	- 19.86
Mali	140.8	93.5	95.2	- 33.58	1.73	- 32.44
Senegal	88.4	74.5	83.6	- 15.75	12.26	- 5.42
Togo	84.4	73.9	73.1	- 12.46	- 1.08	- 13.41
Uganda	103.8	89.8	91.1	- 13.53	1.49	- 12.24
Zimbabwe	53.1	47.1	48.8	- 11.44	3.65	- 8.20

Table 2
Probability of dying between 9 and 26 months by country
and by period prior to the survey

Country	Probability per thousand			Decline in %		
	7-9 years	4-6 years	1-3 years	7-9 to 4-6	4-6 to 1-3	7-9 to 1-3
Botswana	21.1	17.0	17.2	- 19.51	1.27	- 18.49
Burundi	81.9	55.2	56.3	- 32.62	1.98	- 31.28
Ghana	64.1	61.5	60.1	- 4.05	- 2.34	- 6.29
Kenya	27.1	32.9	36.9	21.42	12.09	36.10
Liberia	87.9	87.0	71.9	- 1.09	- 17.35	- 18.25
Mali	120.2	100.1	96.2	- 16.73	- 3.83	- 19.92
Senegal	100.7	91.1	71.3	- 9.54	- 21.79	- 29.25
Togo	56.3	55.8	50.8	- 0.83	- 9.06	- 9.81
Uganda	92.0	74.7	68.7	- 18.81	- 8.08	- 25.37
Zimbabwe	29.1	24.9	19.2	- 14.30	- 22.80	- 33.84

Table 3
Probability of dying between 0 and 26 months by country
and by period prior to the survey

Country	Probability per thousand			Decline in %		
	7-9 years	4-6 years	1-3 years	7-9 to 4-6	4-6 to 1-3	7-9 to 1-3
Botswana	53.7	43.0	48.2	- 19.93	11.96	- 10.36
Burundi	163.8	131.9	105.0	- 19.44	- 20.41	- 35.89
Ghana	141.9	125.0	122.0	- 11.89	- 2.41	- 14.02
Kenya	81.1	77.0	94.2	- 5.00	22.31	16.20
Liberia	232.0	212.1	191.0	- 8.57	- 9.92	- 17.64
Mali	241.2	181.9	179.0	- 24.57	- 1.58	- 25.76
Senegal	177.7	156.0	146.4	- 12.21	- 6.13	- 17.59
Togo	133.8	123.5	116.6	- 7.68	- 5.54	- 12.79
Uganda	178.1	151.8	150.2	- 14.75	- 1.09	- 15.68
Zimbabwe	77.7	68.9	65.1	- 11.29	- 5.52	- 16.19

Mortality levels

The overall picture of mortality in sub-Saharan Africa is a gloomy one. The probability of dying before age five, calculated for all countries and for the period immediately preceding the Demographic and Health Surveys is 170 per thousand. The same indicator, also calculated using available DHS data is 100 per thousand for North Africa, 85 per thousand for Asia and 78 per thousand for Latin America (Sullivan, 1991).

Sub-Saharan Africa is also a continent of contrasts. The situation in West Africa is quite different to that in East and southern Africa. Generally speaking it would seem that mortality levels are highest in the West and go down progressively the further eastwards and then the further southwards one goes. Taking the period 1-3 years prior to the survey for instance, record probabilities of dying at 0-26 months of over 200 per thousand observed in Mali, Liberia and Senegal contrast with levels of under 100 per thousand in Kenya, Zimbabwe and Botswana. Between these two extremes, probabilities of dying from 0 to 26 months range from 100 to 125 per thousand depending on the country (105 per thousand for Burundi, 117 per thousand for Togo, 122 per thousand for Ghana). Uganda is a special case: in spite of being in East Africa it has a rate that is closer to that of West African countries (150 per thousand). This is probably due in large measure to the violent political turmoil that has shaken the country since the end of the seventies.

The ranking of countries is almost identical for early infant mortality (0-8 months) and for mortality from 9 to 26 months. Liberia and Mali are at one end of the spectrum with mortality rates of 133 and 95 per thousand at 0-8 months and 72 and 98 per thousand at 9-26 months; Botswana and

Zimbabwe are at the other extreme with rates of 34 and 49 per thousand at 0-8 months and 17 and 19 per thousand at 9-26 months. As a general rule, the higher the level of mortality overall, the higher mortality in the second year of life is compared to the level of infant mortality. While, for instance, in Botswana and Zimbabwe, the probability of dying at age 9-26 months is only 40 to 50% that of dying below 8 months, the mortality rates for these two age groups are roughly the same in Mali and Burundi. Although this is not systematic it would tend to suggest that mortality at younger ages (0-8 months) is going down more slowly than mortality during the second year of life (9-26 months).

Trends in mortality

Mortality from birth to 26 months between the first period (7-9 years before the survey) and the last period (1-3 years before the survey) has declined in all countries with the exception of Kenya. Overall, the trend has been more salient in countries with high mortality levels than in others. Burundi had the fastest rate of decline with mortality at 0-26 months going down by 36% over a 6 year period (from 164 per thousand 7-9 years prior to the survey to 105 per thousand 1-3 years before). In Mali too the same indicator dropped by 26%. The rate of decline was slowest in Togo (- 13%), Botswana (- 10%) and Kenya which was the only country where mortality actually increased over the whole period under consideration (+ 16%). Although the decline was more pronounced in countries with high mortality it was insufficient to redress the balance between West African countries on the one hand and East and southern African countries on the other. The ratio between countries with high mortality levels and those with low mortality levels only dropped from 5.5 to 4.5.

A comparison of the trends in mortality between the two periods 7-9 years and 4-6 years before the survey and the two periods 4-6 and 1-3 years before the survey shows that for most countries the rate of decline has levelled off. Burundi, where the decline was very marked (about - 20% in each of the two periods) and Liberia where the drop was not so strong (- 9 and - 10%) are the only two countries where the trend has remained steady. It is a known fact that the tendency to omit dead children becomes more marked the further back in time one goes. Therefore the estimated decline between the periods 7-9 and 4-6 years prior to the survey is probably an under-estimation which could explain the slowing down of the decline in childhood mortality that has been observed in the latest period.

As suggested above, the deceleration is particularly marked for mortality at 0-8 months. Burundi is the only country where the decline in the probability of dying at 0-8 months has been greater in the more recent period (- 34%) than during the preceding period (- 7%). In several countries the rate actually increased between the periods 4-6 years and 1-3 years prior to the survey. This is true not only for Kenya (+ 24%) where the regression was most spectacular, but also for Botswana (+ 15%), for Zimbabwe (+ 4%) and, though to a lesser extent, for Mali and Uganda. Declines

in the 9-26 month mortality rate have also levelled off but the phenomenon is both less pervasive and less noticeable.

COMBINING MORTALITY AND FERTILITY TRENDS

According to the theory of demographic transition a decline in levels of mortality leads to a decline in fertility. Total fertility rates were used to determine whether this was occurring. In order to analyze fertility trends

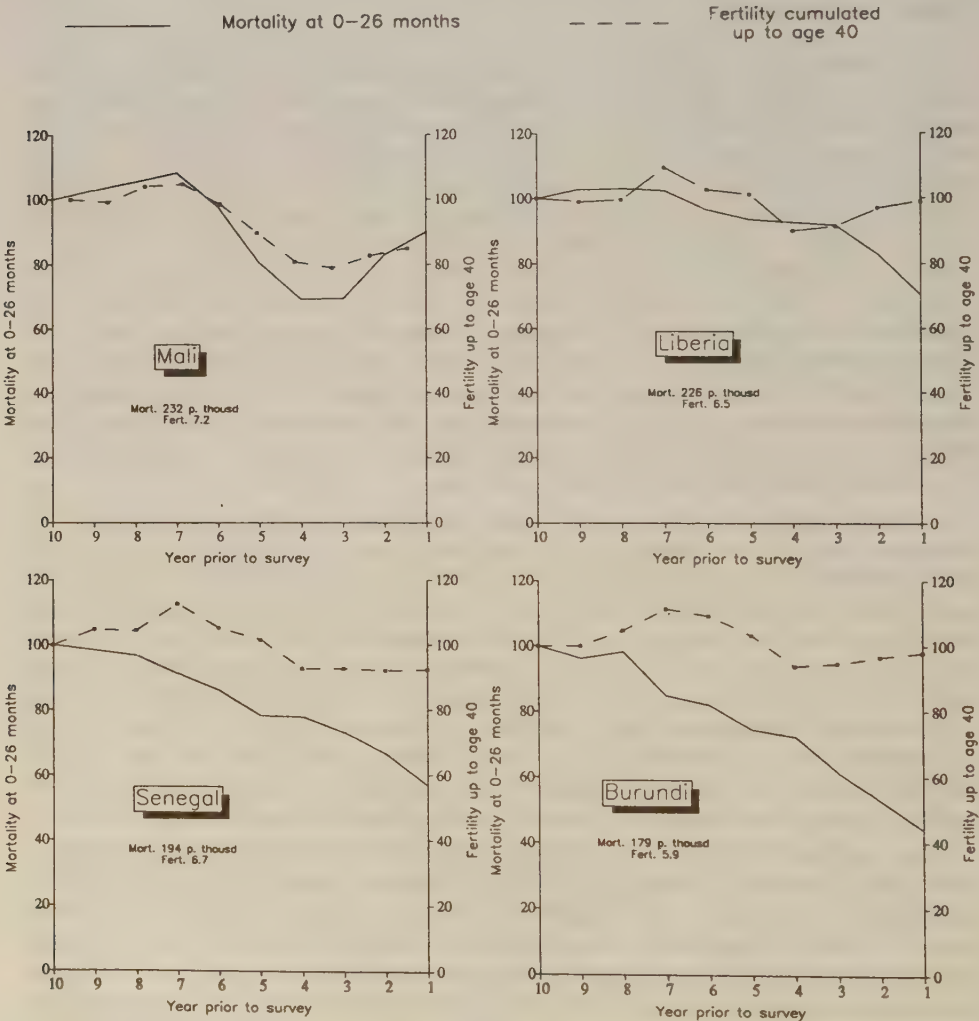


Figure 3
Mortality and fertility trends (index 100 = 10 years prior to the survey)

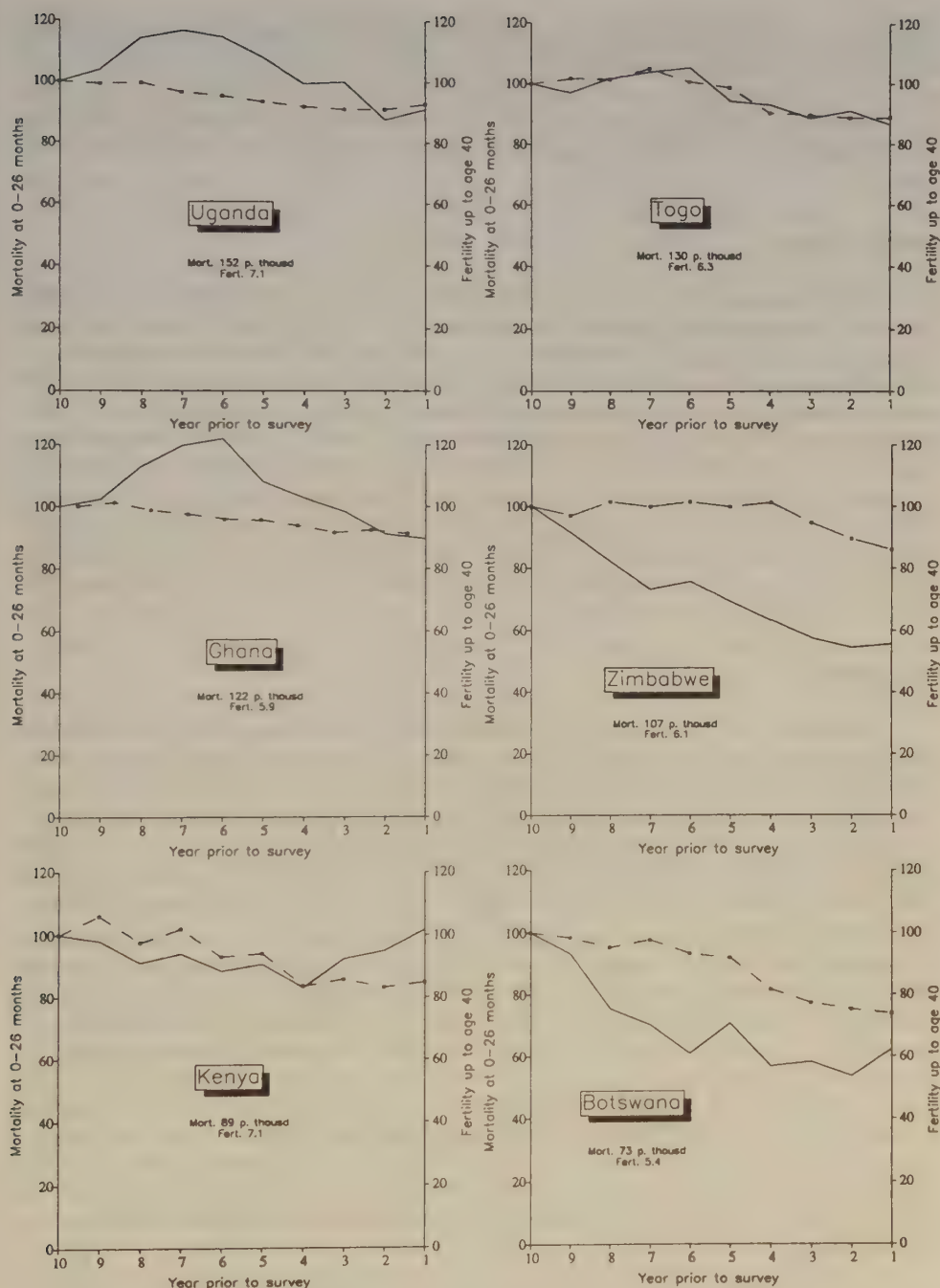


Figure 3
Mortality and fertility trends (index 100 = 10 years prior to the survey)

for the ten year period preceding the survey we calculated the total fertility rate adding together the age-specific rates to age 40 only (instead of age 50). This earlier cut-off point was needed to take account of the fact that since the maximum age for women included in the survey was 50, women who had a child 10 years before the survey cannot have been more than 40.

Methodology

Joint mortality and fertility trends for each country for the ten years prior to the survey are shown in Figure 3. The fertility indicator used is the total fertility rate for women 15 to 40 and the mortality indicator is the probability of dying between 0 and 26 months. The two indicators have been indexed for each country and for each calendar year, the value ten years prior to the date of the survey being 100. A three-year moving average was used to smooth the curves. Countries are ranked according to the level of mortality observed at the beginning of the period under consideration (10 years before the date of the survey). That initial probability of dying is indicated below the name of the country together with the reference fertility rate. The dotted line represents the trend in fertility, the full line represents the trend in mortality.

Description

Countries can be divided into three groups in terms of the way fertility changes in response to trends in mortality. Zimbabwe and Botswana are in the first group. The trend in fertility in these two countries is a textbook example of the course predicted by the theory of demographic transition: consistent and pronounced reductions in mortality (mortality levels have practically halved in Zimbabwe and they have dropped by almost 40% in Botswana) followed after a slight time-lag by a marked drop in fertility.

Kenya, with fairly low mortality levels (the probability of dying before 26 months was under 90 per thousand 10 years before the survey), is the only other country included in this analysis in which fertility has declined although the trend is less pronounced. However, Kenya is in a category of its own as mortality, after declining for several years, suddenly began to rise again consistently four years before the survey. The reason for this rise in mortality is difficult to determine from DHS data. The withdrawal of international organizations which had been very active until the beginning of the eighties – such as the UNICEF with its Expanded Immunization Programme – may conceivably have resulted in a deterioration of the health of the population. This explanation is speculative and requires further investigation.

In the second group Uganda, Togo and Ghana have all three experienced similar demographic changes in the period under consideration: an erratic and scarcely noticeable decline in mortality (barely 10% over 10

years) and a small reduction in fertility. As far as the trend in mortality is concerned the apparent increase at the beginning of the period is probably due to the poor quality of the data. A common feature of retrospective surveys conducted in developing countries is an increasing tendency to omit events (deaths in this case) the further back in time those events have taken place. The rise in mortality could be an artefact due to a progressive reduction in these omissions. However the observed trend could also reflect a true situation. Indeed, there is no such rise in mortality in either Liberia or Senegal where the overall level of education is lower than in, say, Ghana. It is also true that the political situation in Uganda was particularly troubled from the end of the seventies onwards which roughly corresponds to the period in which mortality is seen to rise on the graph. In Ghana the increase in mortality occurs during the period 1979 – 1982 which was a time when the country was reeling from the consequences of the international economic crisis and when the structural adjustment programme was implemented. Both these events – the civil war in Uganda and economic problems in Ghana – may well have had a considerable impact on the health of children.

Mali belongs to this second group but the very erratic changes in mortality and fertility trends puts it in a special category. The two curves follow a remarkably similar pattern with a slight increase of the two indicators followed by a sharp drop and by a slight rise towards the end of the period that is rather more marked for mortality. A possible explanation for these erratic though parallel trends could be, over and above the question of the reliability of the data, that in such a poor and geographically unblest environment health and reproductive behaviour react sharply to the slightest climatic and socio-economic fluctuations.

The third and last group consists of Liberia, Senegal and Burundi. In this group mortality levels have dropped sharply: 60% in Burundi, 50% in Senegal and 30% in Liberia, and fertility lags far behind the trend in mortality. The only country where fertility has dropped, though only slightly, is Senegal but the irregularity of the trend (and in particular the apparent rise at the beginning of the period) raises doubts as to its validity. It seems unlikely that such a large reduction in mortality can have gone unnoticed by the populations concerned. To understand why reproductive behaviour has not adjusted to this decline contrary to the predictions of the theory of demographic transition we will have to adopt a different approach incorporating a separate set of factors.

MODERATING MECHANISMS

Three factors can affect the relationship between mortality and fertility by speeding up or slowing down the rate at which fertility reacts to the decline in mortality: the determinants of birth intervals, the initial level of mortality and the desired number of surviving children. To understand fully

the part played by each of these three factors we must return to the finer points of the theory of demographic transition.

Theoretical framework

The theory of demographic transition posits that the decline in mortality resulting from modernization and medical progress will lead, inexorably, to a decline in fertility at some time in the close or distant future. The high levels of fertility observed in traditional societies were sustained by a set of mechanisms and institutions that protected the social reproductive processes. In situations where the risk of dying at an early age is high, maintaining high levels of fertility is the only way of ensuring population replacement and, *a fortiori*, population growth. When mortality begins to decline the pressure to maintain high fertility levels becomes less intense.

There are two separate mechanisms at play in the process linking fertility decline to the decline of mortality. The first of these is the "physiological effect" (Preston, 1978) which is a mechanical adjustment that operates via the link between childhood mortality and length of birth intervals on the one hand, and the relationship between birth intervals and fertility on the other. In traditional African societies women breastfeed for long periods (occasionally continuing until the child is two or three). The role of breastfeeding as an inhibitor of fecundability is further enhanced – mainly in West Africa – by a taboo on sexual relations during the post-partum period associated with breastfeeding (Schoenmaeckers, Shah, Lesthaeghe and Tambashe, 1981). To the extent that the death of a young child shortens the duration of breastfeeding and leads to a resumption of sexual relations the high mortality levels observed in traditional societies are associated with a high rate of reproduction. A reduction in childhood mortality (particularly for children below the average age of weaning) will, by virtue of this mechanism, increase the length of birth intervals and thereby have a moderating effect on fertility levels.

The second mechanism presupposes that couples have a fairly precise idea of the number of surviving children they need to provide them with sufficient help on the land, to assist them materially or emotionally in their old age, or for any other conscious motive. The "replacement effect" works by guaranteeing a minimum number of surviving children: as soon as a child dies the mother immediately conceives again. In more general terms high levels of fertility ensure that even where the risk of dying in early childhood is high a sufficient number of children will survive to fulfill whatever function has been attributed to them (child labour, material assistance during old age, emotional support, etc.). When mortality levels decline couples gradually come to realize that lower levels of fertility will provide them with the same completed family size since the risk of losing one or several children has lessened. It takes time for this adjustment to occur as perceptions change slowly (especially when mortality levels tend to fluctuate from one year to the next). Couples adjust more quickly when the cost associated with excess numbers of children (in terms of their

desired family size) is higher than that associated with a deficit in numbers, which is generally the case in societies undergoing a modernization process (Caldwell, 1979).

There is a third factor which derives from the one just described. Before perceptions can begin to change and before couples realize that the risk that their children may die has become so weak that they are tempted to modify their reproductive behaviour it seems that mortality has to reach fairly low levels. When early childhood mortality is no higher than 50 per thousand the risk that a family will lose a child will be fairly remote. On the other hand when the probability of dying is high the risk of losing several children at a very young age (and, more importantly, the perception of that risk) will not alter in nature, whether the probability is 400 per thousand or 200 per thousand. Therefore the actual level of mortality plays a role independently of the speed of the decline and determines, at least in part, the moment when reproductive behaviour begins to change. The mortality threshold below which reproductive behaviour and practices are affected may vary from one society to another depending on practices related to breastfeeding, on the excess cost of having too many children and on couples' capacity to limit their fertility.

Methodology

To analyze the relationship between mortality and fertility in more detail, smaller and more homogeneous units of analysis were required. Instead of analyzing whole countries we therefore adopted the regional breakdown as defined in the DHS surveys. Small areas with fewer than 500 women were grouped with neighbouring areas in order to contain the random fluctuations associated with small samples. A list of the 48 sub-regions is given in the appendix. Botswana was not included as a regional breakdown had not been adopted in the DHS survey. The risk of dying between birth and 26 months and the total fertility rate 15-40 were calculated for the same three-year periods as previously (1-3 years, 4-6 years and 7-9 years prior to the survey) for each of the 48 sub-regions. The average duration of breastfeeding was also calculated for the last closed birth interval. Those intervals where the older child had died before the birth of the subsequent sibling were excluded because of the link between premature death and shortened breastfeeding periods. Obviously, leaving out these birth intervals leads to an over-evaluation of breastfeeding durations but the bias is probably not as great as if all birth intervals had been included. The proportion of women having given a non-numerical response to the question about the desired number of children (where for instance the answer is "God will decide") was also calculated for each sub-region. This indicator is a measure of the extent to which women control their reproductive capacity or rather, of how aware women are that they can exercise control. Lastly, the average number of desired children was estimated for all women who had given a numerical answer.

Linear regression was used to calculate the proportionate decline in fertility between the periods 4-6 years and 1-3 years prior to the survey. The following explanatory variables were used:

For fertility:

— the total fertility rate for age groups 15-40 4-6 years prior to the survey (continuous variable)

For infant and child mortality:

— two (continuous) trend variables to provide an estimate of the "net" effect of changes in mortality on fertility, that measure the proportionate decline in mortality:

1. between the periods 7-9 years and 4-6 years prior to the survey
2. between the periods 4-6 years and 1-3 years prior to the survey.

— three (binary) variables indicating level of mortality to test the hypothesis of a threshold effect; the sub-regions were grouped into 4 categories according to the level of probability of dying between birth and 26 months 4-6 years prior to the survey; these variables take the value 1 for all sub-regions where the probability is:

- under 100 per thousand, for the first group;
- between 100 and 150 thousand for the second group;
- between 150 and 200 thousand for the last group;
- a probability of dying of 200 per thousand or above constitutes the reference level.

For the other factors, the following three continuous variables were used:

— average duration of breastfeeding (to test the physiological effect hypothesis)

— proportion of non-numerical responses to the question on desired number of children

— average number of children desired (to measure the replacement effect).

The decline in fertility was first estimated (model 1) using the demographic variables only (fertility and mortality), the other variables were introduced in a second stage (model 2). The results of the two regressions are shown in Table 4.

Discussion

Both estimated models are statistically significant: it is highly unlikely that the relationship found between the explanatory variables and the response variable is due to chance alone (the risk of error is only 1‰ for the first model and less than 5‰ for the second model). The proportion of the variance explained in terms of the total variance is greater in the first model than in the second: 25 instead of 21 percent (adjusted R-square equal to 0.245 and 0.21). This result suggests that the variables added in the second

model do not improve the estimate of the dependent variable in the first model. In non-statistical language this means that the difference in the rate of the fertility decline observed between sub-regions cannot be explained by variations in average durations of breastfeeding or by the declared number of children desired. The absence of a link could be interpreted as being the result of great homogeneity between the regions studied in terms of breastfeeding durations and child preferences. However, there are notable differences in these variables between the 48 sub-regions. The mean duration of breastfeeding is 14.7 months for all regions (standard deviation: 5.9 months). Most of the regions in Mali, Burundi and Togo have upper levels of 18 to 22 months. Conversely, durations of less than 15 months are frequently found in Ghana and Uganda. The divide found between West Africa and East and southern Africa in mortality and fertility levels is not apparent here. However, the same geographical contrast re-appears when analyzing the responses to the question on desired number of children, both in terms of the type of response (numerical vs. non-numerical) and in terms of content (average number of children in the numerical responses). In Mali and in Liberia for example, the proportion of non-numerical answers is more than 20% in most regions and the desired number of children occasionally reaches 7 or 8. In Zimbabwe and in Kenya, on the other hand, women tend to give precise answers to the question on desired family size (the proportion of non-numerical responses is under 10%) and the ideal family tends in the main to consist of between 4 and 5 children.

A more detailed analysis of the first model shows that two factors explain most of the decline in fertility in the sub-regions considered: the level of mortality in the initial period (7-9 years prior to the survey) and the tempo of mortality decline between the periods 7-9 years and 4-6 years prior to the survey. This would seem to point to a threshold effect in the relationship between mortality and fertility: the level of mortality at 0-26 months has to drop to 100 per thousand before reproductive behaviour is affected by the variables used in the model (150 per thousand if we accept a degree of significance at the 10% level). Once mortality has reached more moderate levels fertility begins to decline after a time-lag of about 6 years. This can be deduced from the fact that the decline in fertility between the periods 4-6 years and 1-3 years prior to the survey is significantly associated with the decline in mortality between the periods 7-9 years and 4-6 years, but not with the mortality decline between the periods 4-6 years and 1-3 years prior to the survey (Table 4).

These findings further support the hypothesis that the physiological effect (as measured by mean durations of breastfeeding) does not play a part in the link between childhood mortality and fertility. Any effect of the decline in mortality on fertility via the lengthening of birth intervals should be immediate and so, if the physiological effect did play a role, there should be no time-lag between the combined trends in mortality and fertility.

Figure 4 provides an illustration of the statistical analysis. The figure shows the relationship between levels of mortality and fertility trends in

Table 4
Estimation of the decline in fertility in the sub-regions
of ten African countries

Variable	Model 1		Model 2	
	Coefficient	Prob.> t	Coefficient	Prob.> t
Constant	-7.175	0.420	-1.753	0.894
Level of fertility	0.786	0.541	2.101	0.201
Level of mortality				
< 100 p. thousand	-13.510	0.000	-18.017	0.004
100 to 150 p. thousand	-4.592	0.098	-7.099	0.118
150 to 200 p. thousand	-1.373	0.592	-1.868	0.607
Percent mortality decline				
from 7-9 to 4-6 years	0.126	0.053	0.149	0.037
from 4-6 to 1-3 years	0.042	0.170	0.053	0.118
Duration of breastfeeding			-0.042	0.940
Proportion of non-numerical answers			-1.885	0.184
Average number of children desired			-0.059	0.689
F-statistic	3.54		2.24	
Prob.> F	0.001		0.045	
R-square	0.341		0.387	
Adjusted R-square	0.245		0.214	

the 48 sub-regions considered. The fertility indicator used is the percentage drop in the total fertility rate at age 40 between the two periods 4-6 years and 1-3 years prior to the survey. The mortality indicator is the probability of dying before age 26 months (in thousands) during the period 4-6 years prior to the survey. The correlation between the two variables is highly significant³. A difference of 50 per thousand in the probability of dying before 26 months 4-6 years prior to the survey gives an acceleration in the tempo of fertility decline in the following period of 3.2 percent.

Symbols have been used on the graph to distinguish between sub-regions on the basis of duration of breastfeeding and desired family size. The longer the duration of breastfeeding the greater the impact of the physiological effect; it therefore seems legitimate to expect that for equivalent

³ Pearson's correlation coefficient is equal to 0.4765 which, considering the number of observations, is equivalent to a significance level of below 0.005.

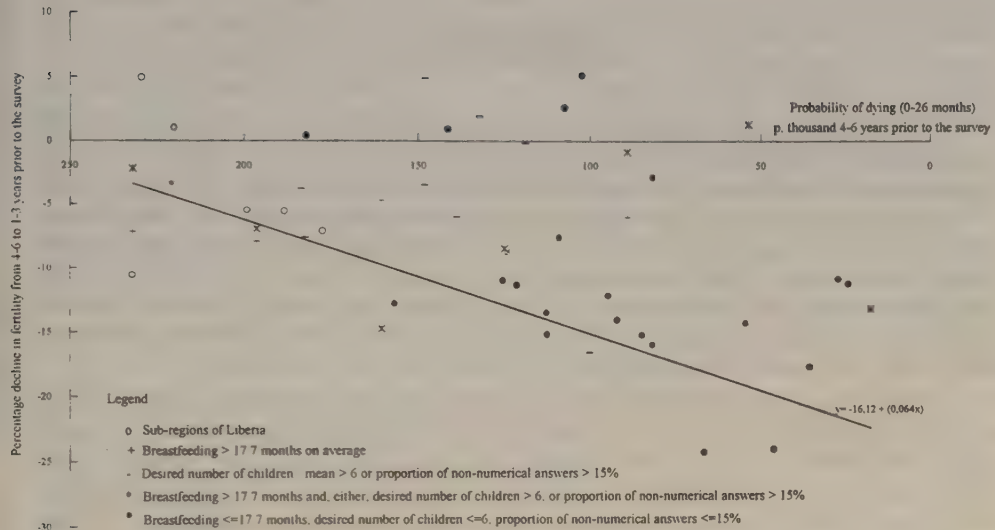


Figure 4
Decline in fertility and level of mortality in 48 sub-regions

levels of mortality the decline in fertility should be greater in regions where breastfeeding durations are longer (at least 17.7 months, i.e. half a standard deviation above average). Those regions are indicated by a "+" sign. Regions where a high proportion of non-numerical responses (over 15 percent) was obtained to the question on desired number of children or by an ideal family size of more than 6 children are indicated by the sign "-" since, theoretically at least, these are characteristics that should slow down the rate at which fertility declines. Regions where breastfeeding durations are long, where proportions of non-numerical answers are high or where the ideal family size is more than 6 children are indicated by a star. Finally, the sub-regions of Liberia for which no data on duration of breastfeeding are available are indicated by a small white circle.

The symbols on the graph confirm the conclusions reached in the statistical analysis to the extent that they show no systematic effect of either factor (duration of breastfeeding or desired number of children) on the mortality-fertility relationship. Association between the level of infant and child mortality and the tempo of fertility decline is no stronger within the sub-groups represented by specific symbols than it is when their specificities in terms of breastfeeding duration and desired number of children are disregarded.

CONCLUSION

The demographic situation in sub-Saharan Africa is one of great and progressively accentuated contrasts running along an axis with East and southern Africa to one side and West Africa to the other. The first signs of a fertility transition are clearly apparent in Zimbabwe and Botswana. Mortality there has declined to such an extent that the two countries are closer to the rest of the developing world rather than to the rest of sub-Saharan Africa, and where fertility is gradually declining. Fertility levels have also declined noticeably in Kenya where the risk of dying between birth and 26 months has dropped to below 100 per thousand.

Although fertility levels have remained largely unchanged in the other countries included in this study, mortality has declined considerably in most of the countries where it had heretofore been very high: in Senegal and, more particularly, in Burundi the risk of dying before 26 months practically halved over the ten years preceding the survey. In these countries as elsewhere, in Liberia, Mali and Uganda, the risk of dying before 26 months remains too high for the changes in reproductive behaviour required for a decline in fertility to take place. There seems to be a threshold effect below which trends in mortality will not influence fertility. The level in the 0-26 month mortality rate below which the relationship between the two demographic variables becomes highly operative is around 100 to 150 per thousand.

This analysis has highlighted the associations that exist between childhood mortality and fertility. It has been established that declines in mortality must occur before the fertility transition can take place. Because of the statistical nature of the analysis fuller understanding of the phenomena observed is not possible. The mechanisms linking mortality and fertility have only been partially elucidated. However, our findings suggest that these changes do not result from the relationship between childhood mortality and birth intervals. The impact of the decline in mortality on fertility may occur more indirectly via for instance, psychological factors as yet not fully identified. Among such factors one in particular stands out. It is the awareness of an ability to control one's environment. It is this realization that can induce individuals to translate a desire for a smaller family into action and can lead to changes in behaviour.

The gradual lowering of childhood mortality levels, by proving that it is possible to arm oneself against fate, can trigger this realization. As people gradually come to realize that they are not the pawns of fate and feel the burden of external destiny lift, they will start to make their own decisions on matters relating to health and to reproductive behaviour. To that extent the very factors of mortality decline are important determinants of changes in fertility. When mortality declines are mainly due to external interventions (such as UNICEF immunization campaigns for example), individuals do not come to feel that they have had a part to play in generating

the change to the same extent as when reductions in mortality are the outcome of long-term programmes intended to modify individual behaviour in terms of domestic hygiene, nutrition and use of health care for instance. If this hypothesis is correct it is not the decline in mortality *per se* that ultimately leads to a reduction in fertility but rather the psychological advance obtained by sparking a revolt against fate in traditional societies.

One of the main factors that could prompt such a change in mentalities is without doubt an increase in levels of schooling for women which, by modifying their perception of the world and by improving their socio-economic position, would encourage them to abandon traditional conceptual frameworks and to adopt innovative behaviour. Thus the relationship between fertility and mortality may not be just a causal link. In this hypothesis a third factor (education) modifies behaviour initially in terms of health and, at a later stage, in terms of reproductive behaviour. The data from the Demographic and Health Surveys are not appropriate for an investigation of this hypothesis but it is important that the mechanisms linking fertility and mortality be examined in more depth particularly in view of the present climate, both in the economic sphere (the collapse in the price of raw materials, budgetary crisis, etc.) and in health (the AIDS epidemic, renewed outbreaks of malaria and cholera, etc.) that seems to predict a deceleration in the rate of the decline seen so far in childhood mortality.

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Appendix 1

Definition of the Sub-regions using the initial DHS geographical breakdown

1. <i>Burundi</i> (from 5 to 4 regions)	
BU1	Imbo
BU2	Mugamba + Mumirwa
BU3	Plateaux
BU4	Dépressions
2. <i>Ghana</i> (from 8 to 7 regions)	
GH1	Western+Central
GH2	Accra
GH3	Eastern
GH4	Ashanti
GH5	Volta
GH6	Brong Ahafo
GH7	Upper West, North, East
3. <i>Kenya</i> (7 regions, not modified)	
4. <i>Liberia</i> (from 13 to 6 regions)	
LB1	Lofa + Cape Mount + Bomi
LB2	Montserrado+Margibi
LB3	Bong
LB4	Bassa+Nimba
LB5	Rivercess + Sinoe + Kru + Maryland
LB6	Gedeh
5. <i>Mali</i> (from 8 to 5 regions)	
ML1	Kayes + Koulikoro
ML2	Sikasso
ML3	Segou
ML4	Mopti + Gao + Tombouctou
ML5	Bamako
6. <i>Uganda</i> (from 6 to 5 regions)	
UG1	West Nile + West
UG2	East
UG3	Central
UG4	Kampala
UG5	South West
7. <i>Senegal</i> (4 regions, not modified)	
8. <i>Togo</i> (from 5 to 4 regions)	
TG1	Maritime
TG2	Plateaux
TG3	Centrale + Kara
TG4	Savanes
9. <i>Zimbabwe</i> (from 9 to 6 regions)	
ZW1	Manicaland
ZW2	Mashonaland Central + East
ZW3	Midlands
ZW4	Mashonaland West
ZW5	Matabeleland North + South + Masvingo
ZW6	Harare + Bulawayo

Appendix 2
Data used for the statistical analysis of the sub-regions

Regions	Fertility		Mortality			Average duration of breast-feeding (in months)	Desired nb of children	
	Rate at age 40 7-9 years prior to survey	Percent decline from 4-6 years to 1-3 years prior to survey	Prob. of dying at 0-26 months 7-9 years prior to survey	Prob. of dying at 0-26 months 4-6 years prior to survey	Percent decline from 4-6 years to 1-3 years prior to survey		Percent-age of non-numerical answers	Average number
BU1	5.64	0.37	169.9	182.1	- 8.35	15.60	3.83	4.48
BU2	6.75	- 7.16	157.8	105.0	- 24.29	21.41	8.36	5.10
BU3	6.27	- 7.92	162.9	120.6	- 27.28	22.19	10.58	5.32
BU4	6.75	- 4.68	167.2	146.2	- 19.43	20.49	13.35	6.00
GH1	5.76	- 3.45	191.9	148.2	- 3.64	13.55	16.82	5.13
GH2	4.62	- 12.21	104.8	95.0	- 48.42	13.71	5.69	4.58
GH3	6.07	- 8.70	134.0	124.3	- 31.54	15.57	8.25	4.86
GH4	5.97	5.11	100.4	102.3	- 14.57	17.08	15.00	4.84
GH5	6.10	0.92	121.7	141.3	- 1.27	16.41	5.35	5.01
GH6	6.71	2.60	111.5	107.3	- 0.37	16.91	14.00	5.30
GH7	6.52	- 8.47	191.7	129.1	69.33	19.34	29.53	8.24
KE1	4.40	- 2.89	56.9	81.7	- 26.07	15.60	1.98	3.56
KE2	6.81	- 17.80	40.8	35.9	64.62	16.18	2.42	3.79
KE3	5.84	- 13.52	147.4	112.9	3.54	15.73	13.33	5.71
KE4	6.85	- 14.37	58.9	54.5	10.83	17.27	0.89	4.15
KE5	7.25	- 11.01	127.5	125.5	35.54	16.62	5.45	4.53
KE6	7.51	- 10.94	45.1	27.4	47.81	15.79	1.27	4.57
KE7	7.59	- 7.63	99.0	109.1	18.15	16.44	7.69	4.84
LB1	6.26	- 5.56	211.1	188.4	2.44	NA	30.96	5.76
LB2	5.62	- 5.50	211.2	199.1	- 8.29	NA	20.92	5.26
LB3	6.51	- 7.14	170.6	177.5	- 29.58	NA	21.44	6.18
LB4	5.88	4.92	252.3	229.5	- 12.85	NA	27.64	6.51
LB5	7.11	- 10.58	264.4	232.1	- 8.40	NA	14.44	7.25
LB6	6.71	1.00	249.5	220.2	- 5.36	NA	31.20	7.73
ML1	7.74	- 7.62	250.4	182.4	1.54	17.68	36.51	6.48
ML2	8.31	- 0.87	221.8	168.1	- 20.35	18.37	19.17	7.14
ML3	7.17	1.30	235.7	216.2	- 31.36	18.23	28.97	5.82
ML5	7.73	- 13.24	314.1	227.9	38.22	20.50	19.85	8.04
ML5	6.40	- 16.61	153.3	100.4	- 4.68	15.15	25.25	5.07
SN1	6.72	- 11.37	147.1	121.4	- 12.77	15.40	6.69	5.90
SN2	6.93	- 6.97	184.6	182.4	- 13.65	17.95	11.32	7.34
SN3	6.93	- 6.00	165.8	138.9	47.30	16.47	25.27	7.20
SN4	6.96	- 14.76	250.0	189.5	- 15.99	18.59	9.60	7.95
TG1	6.35	- 15.21	129.3	112.7	- 6.30	16.92	0.40	4.63
TG2	6.26	- 8.58	121.8	130.6	- 8.58	17.84	0.39	5.09
TG3	7.01	- 6.03	150.6	116.8	- 3.42	18.33	0.56	5.73
TG4	7.15	- 2.20	140.3	148.9	- 2.89	19.95	0.53	7.30
UG1	7.65	- 0.15	178.2	118.8	50.42	17.53	17.43	6.57
UG2	6.47	4.89	229.4	147.9	10.55	14.34	6.82	6.25
UG3	6.81	- 3.78	172.9	183.6	- 15.47	13.68	8.84	6.38
UG4	6.17	- 12.81	144.1	157.0	15.86	12.51	1.71	5.28
UG5	7.01	1.91	164.4	132.0	- 6.44	15.69	4.26	6.86
ZW1	6.68	- 14.09	145.8	92.3	- 10.18	15.80	8.92	5.45
ZW2	5.84	- 16.03	64.8	81.9	- 16.73	16.84	9.51	5.09
ZW3	6.33	- 11.32	89.7	24.4	247.13	15.27	7.62	4.88
ZW4	6.06	- 24.40	82.7	66.7	23.84	16.92	9.29	4.95
ZW5	6.54	- 15.28	61.1	85.0	- 47.41	16.20	5.89	5.08
ZW6	4.21	- 24.18	33.8	46.4	- 22.63	14.05	3.87	3.99

ABSTRACT

Is it legitimate to believe that sub-Saharan Africa will follow in the footsteps of other regions of the developing world and conform to the pattern predicted by the theory of demographic transition? An analysis of the Demographic and Health Surveys available for eleven countries in sub-Saharan Africa provides a partial answer. All eleven countries have seen an improvement in childhood mortality over the last ten years. Those countries where levels are lowest at the moment, Zimbabwe, Botswana and to a lesser extent, Kenya, are characterized by a significant decline in fertility. The faster mortality has declined the greater the ensuing drop in fertility. There is a threshold effect in mortality levels which explains why fertility has remained practically stable in the other countries in the study in spite of declining childhood mortality levels. The findings of the statistical analysis suggest that the threshold effect comes into operation at a level between 100 and 150 per thousand in terms of the probability of dying before age two. Several of the mechanisms that can affect the mortality-fertility relationship are examined in this analysis without showing any significant effect.

The Onset of Fertility Decline in Latin America

José Miguel GUZMÁN*

At the beginning of the sixties, Latin American countries were marked by high rates of population growth. This situation, which predominated throughout the sixties and seventies, was caused by the prevalence of high fertility and an earlier decrease in mortality. Much of the concern regarding the "demographic explosion" was born from this Latin American experience.

However, coinciding with these dates, fertility started to decrease in most Latin American countries; this phenomenon, reflected in the subsequent decades, became a sustained process of decreasing fertility based on a radical change in the reproductive patterns of families. There has been a growing inclination towards adopting a more or less generalized behaviour regulating fertility, and it has become a significant part of the everyday life of millions of inhabitants, many under apparently dissimilar conditions.

Of course, an analysis of the Latin American experience regarding fertility transition does not show a single pattern. In fact, many differences appear when the specific experiences of individual countries are analyzed. Argentina and Uruguay show the typical pattern found in European countries, where fertility started to decline at the end of the XIXth century and the beginning of the XXth. The case of Cuba is also peculiar, because fertility was already low at the end of the fifties, before undergoing an increase during the early sixties, only to rapidly descend later to the present point under replacement level¹. By contrast, in the rest of Latin America, the total fertility rate in the beginning of the sixties was greater than 5 children per woman, and in some countries rates reached levels higher than seven children per woman.

* United Nations, UNFPA Support Team, Office for Latin America and the Caribbean, Tomás de Figueroa 2451, Vitacura, Casilla 197-D, Santiago, Chile.

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¹ Taking account of this, in this paper more attention will be devoted to countries where fertility transition began the decline after the fifties. That means that the case of Argentina and Uruguay will not be analyzed in detail.

The general process of fertility change has been well documented². However, the study of the *onset* of fertility transition has received less attention. In this regard, this document will focus on the analysis of the moment in which the transition began. In the first section, the main characteristics of the social and economic changes that occurred in the region are presented. The second section includes a brief discussion about some of the different approaches developed to understand the beginning of a sustained decline in fertility. The third section, which contains the nucleus of this document, includes a general overview of fertility transition in Latin America, and an analysis of the social and economic situation at the onset. Finally, a discussion of the results is presented. It is expected that, in terms of this book, this document will help to determine the way in which Latin American experience could aid the comprehension of fertility transition in Africa.

THE SOCIAL AND ECONOMIC CONTEXT OF LATIN AMERICA³

In the majority of the countries of the region leading up to the beginning of the post-war period⁴, the social structure characteristic of agrarian societies predominated. Some of their more important features were the high proportion of rural population, separation of indigenous populations from sectors of the dominant society (in countries where the indigenous people were the majority), basic agriculture as the principal type of production, low educational levels and high rates of illiteracy (Rama, 1984).

At the beginning of the sixties, the Latin American countries underwent a remarkable transformation that encompasses different aspects of the social context. A recent ECLAC study (CEPAL, 1989) concludes that profound social changes occurred which were expressed in great occupational, geographic, educational and social mobility. This mobility was reflected, among other effects, in a decrease in the agricultural labour force, an increase in non-manual sectors, and a greater participation of women in the economic activities. The urban population increased rapidly as a consequence of growing migration from the countryside, and educational levels went up significantly. There was also a tremendous development in both mass communications and the communication and transportation networks within and between the countries.

² The Seminar on Fertility Transition, held in Buenos Aires, in April 1990, under the activities of the Committee on Comparative Analysis of Fertility and Family Planning of the IUSSP is a good example of a well documented overview of this process.

³ This chapter is mainly based on a previous work of the author (Guzmán, 1990).

⁴ It is not the case of Argentina and Uruguay, countries in which fertility began to decline earlier due to a sizeable influx of European immigrants and a modernization process which began at the turn of the century.

Continuing with ECLAC's study, it concludes also that the above mentioned changes occurred in the context of a growing penetration of market modalities by production and consumption, as well as in remarkable increases in the qualification and productivity of the labour force. Furthermore, at least until the beginning of the crisis of the 80's, there were increases in the per capita product, which, for Latin America as a whole, doubled between 1955 and 1980⁵. This process, although not accompanied by an improvement in income distribution, affected nevertheless in varying degrees the life of most people in almost all Latin American countries.

The modernization process in Latin America did not occur as a linear process in which the social aspects developed in a direct and instantaneous relation with, or as a consequence of, the economic conditions. In fact, it has been a complex and contradictory process in which the "social" was only partially endogenous to the model. The action of the State in social areas such as education and health, played a key role in the changes that occurred; it was a domain which depended more on the "style of development" than on the economic growth itself.

The great improvements in education, for example, of which the effects on fertility have been considered important in the studies on the subject⁶, originated in the growing demands of capitalist development during the sixties, (although it did not follow its logic very closely). The results were, and continue to be, amazing. Changes in education have been truly spectacular. A recent study shows, in almost all the countries examined, that the level of education of the youngest female cohort averaged twice that of cohorts who were finishing their reproductive period, that is, that the youth integrate themselves *en masse* and to an increasing degree into the highest educational levels (Weinberger *et al.*, 1989).

A similar situation occurs with health and, especially, in terms of the access to contraceptive methods. Family planning programmes were started in the mid-sixties by private groups in most of the countries, later becoming officially regularized in many countries of the region (Mundigo, 1990; Singh and Berrio, 1989). Their development and expansion during the sixties and seventies were not directly related to the economic evolution of the country; in fact, they followed a relatively independent path, since in most cases the funds for their implementation had a strong international aid component. They demanded, nonetheless, a minimum economic and service infrastructure.

These elements are undoubtedly part of a development vision that encompasses not only aspects of the economic product growth but also the achievements of social development, which, as stated above, are not always

⁵ During the 1960-1975 period, GDP grew by rates of over 5% a year.

⁶ Caldwell, for example, notes that education affects fertility through at least five mechanisms: (1) reduces the potential labor of the child in the home and outside; (2) increases the cost of child-rearing; (3) increases societal demands on the family to protect the social investment in the child as a future producer; (4) accelerates cultural change and creates new cultural phenomena; and (5) propagates western middle-class values (Caldwell, 1980:228).

directly related to the former. This approach is considered to provide a better understanding of the fertility change process in Latin America.

SOME THEORETICAL APPROACHES FOR EXPLAINING THE ONSET OF FERTILITY DECLINE⁷

The study of fertility change implies dealing with three of its important aspects: the nature of the high pre-transition fertility, the moment of destabilization and break to a lower fertility pattern, and the decrease process itself. The different theoretical approaches take into account these three elements although assigning them different priorities. This paper centers on the *onset*; however, the analysis cannot be made without taking into account the other two elements of change.

There is a certain consensus at present that the high fertility characteristic of societies in their pre-transition stage is based on the nature of their economic relations (and, in particular, on the role that the family plays in them). The economic value of children, both at the present moment and in terms of future security, is a key factor, if a deliberate control of fertility is not already a general practice, in defining the reproductive pattern of societies. Thus, Caldwell (1978, 1980, 1981) states that pre-transition societies, where fertility is high and stable, are characterized by the existence of net wealth flows that go from the younger to the older generations. Production relationships in these societies are unequally based on kinship, giving the oldest the most material advantages; thus, high fertility is advantageous for the family, and particularly for its dominant members; in the post-transition stage, in turn, the economic rationality leads the couples to have no children since the flow of wealth goes in the opposite direction, from the oldest to the youngest.

There are, however, great differences in approach when trying to explain the destabilization process, and its tendency towards controlled reproductive patterns. In this regard, two different ways of dealing with this process can be mentioned. One considers the modernization process, or transformation of the economic structure, as a pre-condition for change in fertility. Another one emphasizes the impact of the diffusion of ideas as the major determinant of change in reproductive behaviour.

In the first approach, in which the more aggregate is the demographic transition theory, the modernization process brings about an important improvement in living conditions and, consequently, a decrease in mortality. At the same time, the cost of children increases due, among other reasons, to the high educational levels that parents want for their children. Families are then faced with the alternative of either keeping high fertility and, consequently, given the changes of the modernization process, having a

⁷ This chapter has been developed taking into account of the ideas presented in the document of Guzmán and Bravo, 1990.

lower level of living or, decreasing their fertility in order to maintain or increase their level of living.

This basic approach was highly criticized by studies on fertility transition in Europe carried out by the Office of Population Research of Princeton under the leadership of Ansley Coale (see Coale, 1973; Coale and Watkins, 1986; Knodel and Van de Walle, 1979); they found that the beginning and the first phase of the fall in fertility were not necessarily linked to changes in socio-economic factors such as urbanization, industrialization, etc. They stated, rather, that although a sufficiently high development level was, in general, associated with a reduction in fertility, previous changes in mortality or other socio-economic indicators did not allow for the explanation or prediction of the initial change stage. Thus exists, the difficulty in sufficiently defining an initial level of modernization in order to permit the reliable identification of a population whose fertility was on the verge of decreasing (Coale, 1973).

From both this experience and the transition pattern observed during the last decades in developing countries, alternative explanations, which can be defined as a second approach, have arisen from underlying causes of fertility decline. In this line, Knodel and van de Walle (1979) stated that the changes that occurred in European fertility had a heavy component of innovation-diffusion; they responded, in other words, mainly to a process of introduction of an innovation (fertility control), and its further diffusion among the majority of population. The authors extended this conclusion to the analysis of contemporary populations in Asia and found that the practice of limiting family size, once initiated, rapidly and progressively extended to the bulk of population, thus constituting a cumulative and irreversible process (Knodel, 1977).

Caldwell, on his side, considers fertility destabilization as a product of the continuous disintegration of the familial mode of production prevailing in pre-transitional societies and their production relationships. This change, expressed as the reversion of the net flow of wealth from older to younger generations, is essentially the result of a social change. What then specifically determines the *onset* of transition is the measure of speed at which family relationships become westernized (Caldwell, 1981), therefore suggesting an ideological ingredient as the main factor causing fertility destabilisation; economic growth, or industrialization, is considered only in the sense that family nucleation cannot occur in a non-monetized economy (Caldwell, 1976). Although the author does not place emphasis on this process of fertility change, it appears obvious that this may be inserted into the theoretical framework of the innovation-diffusion process mentioned above.

How have the mechanisms of high fertility destabilisation been studied in Latin America? Without wanting to be exhaustive, at least some contributions can be mentioned. In terms of the influence of a decline in mortality on the disruption of a high fertility regime, Bravo (1991) found that in 18 countries considered it preceded fertility decline by an average period of three quinquennia. This finding reinforces the idea that is implicit in the

demographic transition theory that mortality decrease is a pre-condition of fertility decline – at least at the national aggregate level⁸.

Turning to the mechanisms implicated in the decline of fertility, the role of diffusion approach has been highlighted. By revealing the manner in which fertility decline occurs, this approach suggests cultural and ideological factors as the principal mechanisms explaining the disruption of high fertility levels. In a study based on both the World Fertility Survey and the Demographic and Health Surveys of six Latin American countries, and using a statistical model of fertility by periods, Rodríguez assigns an important role to diffusion as a mechanism determining fertility change. He found that in the different social strata the spacing and control fertility indexes seem to have followed similar declining patterns in time, which is consistent with a simple model of social diffusion (Rodríguez, 1990). In fact, these results would seem to be validated by different studies of fertility change after 1960, showing the earlier decline in urban areas, more educated women and, in general, in high socio-economic strata (Behm and others, 1980, 1984; Chackiel and Schkolnik, 1990).

Exploring the validity and complementarity of the two approaches mentioned above, in the light of Latin American experience during the period 1950-1990, Bravo (1991) found that when studying what has happened at the interior of the countries, the process resembles what would be expected, according to the diffusion theory (showed by the pattern and the speed of fertility decline across the different socio-economic groups, once this process has been initiated). He considers this approach relevant for the description of the transition process, but not as a comprehensive, explanatory framework. In addition, by analyzing the relationship between some economic indicators, and fertility change, the author concludes that at the international level, the economic development indicators such as per capita Gross Domestic Product (GDP) and literacy are related to fertility in the direction predicted by the modernization approach; these relationships, however, "have shifted and become less steep over the last two to four decades" (Bravo, 1991:10). Furthermore, in most countries, during the "lost decade" (eighties), fertility continued declining and, in some cases, with even greater rapidity than before (Guzmán, 1992). In other words, if economic growth leads to a drop in fertility, it is also possible that the economic crisis of the 1980s produced its own fertility decline (Carvalho *et al.*, 1981). These facts do not deny the role of the economic forces in fertility change, but simply reinforce the idea that those effects are multi-directional.

From a perspective that intends to reassure the role of economic changes Paiva (1984) states that, at the pre-transitional stage, fertility remains stable due to the insertion of family not only in the production structure

⁸ This finding would be consistent with the results obtained by Cutright and Hargens (1984), who, using data from Latin America from the 1950-1980 period, reexamined the validity of the threshold hypothesis developed 20 years before (United Nations, 1965), and concluded that threshold values may exist both in mortality (life expectancy of 56 years at birth) and in education (74% of adult literacy) on the reduction of fertility in the region.

but also in the consumption structure. To the extent that reproduction (daily and intergenerational reproduction) takes place inside the domestic unit, there are no pressures for deliberate fertility control; this is true both because the family takes advantage of children as a labour force, also because as far as the access to the means of subsistence is determined by their own production, families would have a greater control of subsistence costs.

The mechanism, according to the author, causing the destabilization of this system is the proletarianization occurring not only in connection with trends towards massive insertion of labour force into the market economy, but also with respect to the eruption of the family consumption in the market. Thus, the indicator of an insertion of a salaried labour force into the economy would be only one of the expression of this process, since the non-salaried would also become connected and dependent through consumption, on this monetized economy. To the extent that families get their means of subsistence from the market, their consumption levels will be influenced by price variations. In reaction, the families will respond by adopting fertility control in order to maintain their standards of living. The author states that, in the case of Brazil, – in the context of a substantial modification of the price structure – the diversification of consumption patterns, together with the increment of durable goods and the unification of the labour market for non-qualified workers has caused an increase in the cost of children, consequently leading to fertility decline.

THE ONSET OF FERTILITY TRANSITION: AN OVERVIEW OF LATIN AMERICAN EXPERIENCE

Since this paper is focussed on the *onset* of fertility transition, what follows has been intended to study this phenomenon vis-a-vis the approaches and results already outlined. To start, a general view of the process of fertility change in Latin America will be presented.

An overview of fertility transition

At different stages, and with greater or lesser quickness or slowness, all the countries of Latin America have been integrating in themselves a process of fertility transition moving towards lower values than those prevailing before the *onset* of this process⁹. As can be seen from Figure 1 (see also Table 1), the process of change has become rather generalized, although it shows important differences among countries. For analytical purposes, we have clustered the countries into four groups, following a classification used in a previous paper (Guzmán, 1990), in which countries were categorized by the level of fertility in 1985-1990.

⁹ The only exception to this process would be the case of Haiti, in which a rise in fertility would be produced in eighties (see text).

FERTILITY DECLINE IN LATIN AMERICA

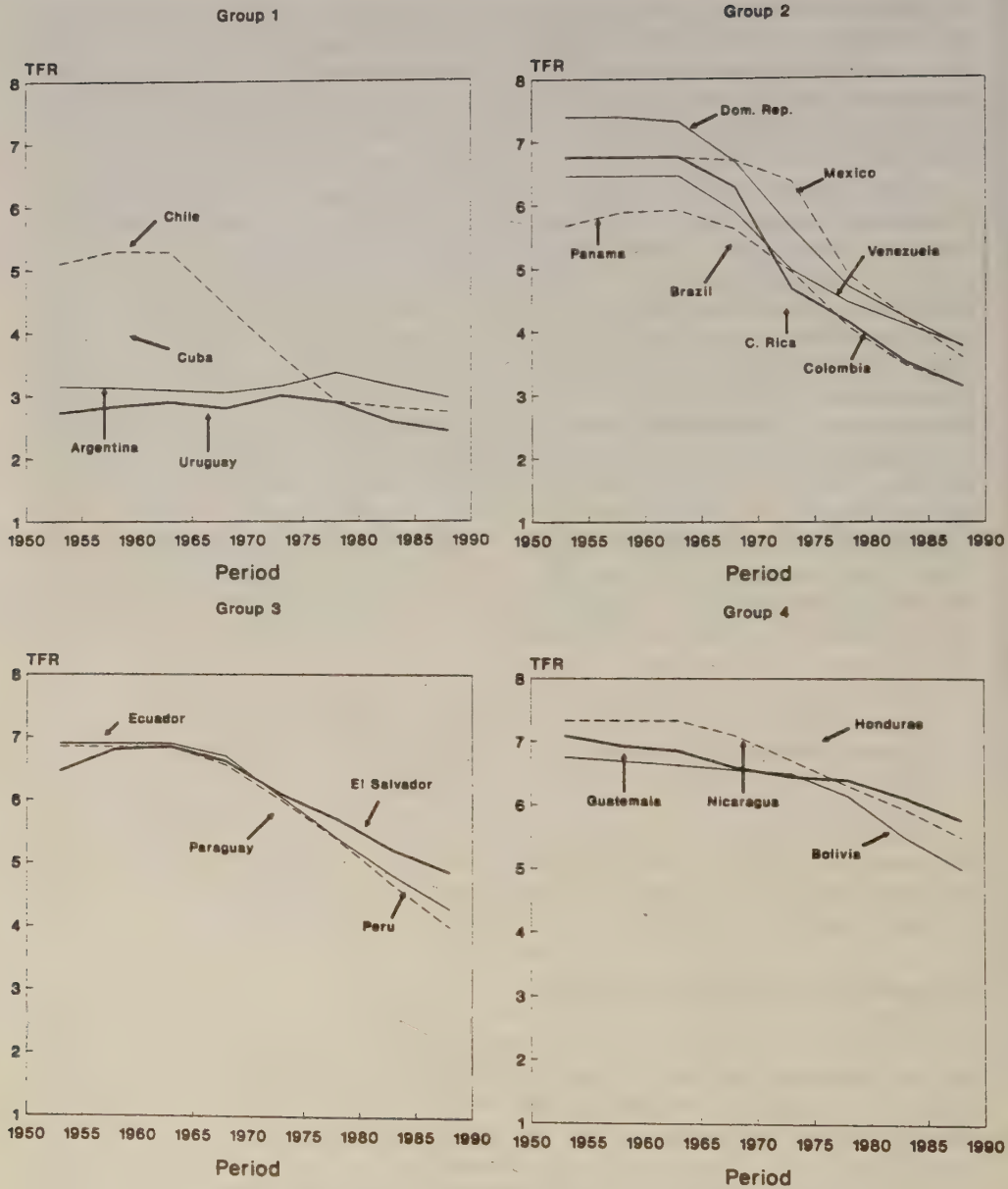


Figure 1
Total Fertility Rate in Latin America countries

Group 1 embraces the countries which have completed or almost completed their transitions. Argentina, Uruguay and Cuba, of which mention has been made, and Chile, belong to this group. As has been said, the fertility transition in Argentina and Uruguay began in the end of

Table 1
Total Fertility Rates. Latin America 1950-1990

	1950-55	1955-60	1960-65	1965-70	1970-75	1975-80	1980-85	1985-90
Argentina	3.15	3.13	3.09	3.05	3.15	3.36	3.15	2.96
Bolivia	6.75	6.69	6.63	6.56	6.50	6.15	5.50	5.00
Brazil	6.15	6.15	6.15	5.31	4.70	4.21	3.81	3.46
Colombia	6.76	6.76	6.76	6.28	4.67	4.14	3.51	3.13
Costa Rica	6.72	7.11	6.95	5.80	4.34	3.89	3.50	3.26
Cuba	4.10	3.68	4.67	4.29	3.55	2.10	1.85	1.83
Chile	5.10	5.30	5.28	4.44	3.63	2.90	2.80	2.73
Dominic Rep.	7.40	7.40	7.32	6.68	5.63	4.70	4.21	3.75
Ecuador	6.90	6.90	6.90	6.70	6.05	5.40	4.80	4.28
El Salvador	6.46	6.81	6.85	6.62	6.10	5.70	5.21	4.86
Guatemala	7.09	6.93	6.85	6.60	6.45	6.40	6.12	5.77
Haiti ¹	6.15	6.15	6.15	6.15	5.76	5.35	5.05	4.74
Honduras	7.05	7.18	7.36	7.42	7.38	6.58	6.16	5.55
Mexico	6.75	6.75	6.75	6.70	6.37	4.89	4.20	3.58
Nicaragua	7.33	7.33	7.33	7.10	6.71	6.31	5.94	5.50
Panama	5.68	5.89	5.92	5.62	4.94	4.06	3.46	3.14
Paraguay	6.80	6.80	6.80	6.40	5.65	5.05	4.82	4.58
Peru	6.85	6.85	6.85	6.56	6.00	5.38	4.65	4.00
Uruguay	2.73	2.83	2.90	2.80	3.00	2.89	2.57	2.43
Venezuela	6.46	6.46	6.46	5.89	4.97	4.45	4.10	3.77

Source: CELADE (1990) *Demographic Bulletin*, year XXIII, no 45, Santiago, Chile.

¹ These values are those implied in the population projection, but they do not seem adequate to represent the fertility change in Haiti (see text).

XIXth Century. All of them have reached, in the period 1985-1990, TFR (Total Fertility Rate) values of less than 3 children. Cuba was even under replacement level, after having experienced an important declining process, starting from the period 1960-65 (in which fertility had been increasing). As for Chile, having started from an initial fertility level that was not as high in 1960, TFR has reached values of under 3 children, remaining relatively stable throughout the 80's.

A second group, which will be called advanced transition, had reached, in the period 1985-1990 TFR values of between 3 and 4 children (Brazil, Colombia, Costa Rica, Dominican Republic, Mexico and Panama). These countries reduced by half the fertility rates prevailing at the beginning of the sixties. Within this group, the case of Mexico should be pointed out, whose delay in starting the decline was "compensated" by the speed of its decline.

A third group, of intermediate transition, is composed of countries whose fertility rate was between 4 and 5 children in the period 1985-1990.

The countries within this group (Ecuador, El Salvador, Paraguay and Peru) started from high fertility levels (TFR equal to 7 children per woman) and exhibited, on the average, fertility declines not so sharp as the previous group. Peru has showed an important decrease, especially in the most recent decade, which place it very close to group 2.

Finally, there is the fourth group, that of late or delayed transition. The countries in this group (Bolivia, Guatemala, Honduras and Nicaragua) maintain TFR's over 5 children per woman in 1985-1990. Within this group, Bolivia, which has showed important declines in the last decade, should be mentioned.

One of the salient traits of fertility contexts in Latin America was the relatively high fertility levels from which they started their transitions around 1960. In some countries, among them Costa Rica and the Dominican Republic, the TFR was near 7.5 children per woman as a national average, including the existence of significant groups of population for which this measure was higher than 8 children. This high level of fertility was explained by early and generalized marriages, relatively short periods of breastfeeding (with the exceptions of countries with important indigenous population) and, of course, low prevalence of contraception. This high rate was due also to a certain increase in fertility, in at least five countries just before the transition to lower values. In fact, as it has been recently shown (Guzmán and Rodríguez Vignoli, 1992, 1992a) this increase was more generalized than indicated by data from Table 1¹⁰. For Costa Rica, Chile and El Salvador, three of the countries presenting a significant increase in the fifties, these increments appears to have been caused mainly by the marriage boom that took place in this period (Rosero, 1990).

In relation to the role of proximate determinants in the fertility transition, it has been shown that the major contribution came from the increasing use of contraceptive methods and, perhaps, abortion (Moreno and Singh, 1990; Frejka and Atkins, 1990). With some exceptions, the changes in the age of marriage and in the length of breastfeeding have not been so important as to affect, in one way or another, the decline of fertility levels (Rosero-Bixby, 1990; Moreno and Singh, 1990).

The onset of fertility transition

The national level

It is not easy to define the moment in which fertility decrease is initiated in each country. An attempt has been made in this paper to establish it, taking into account the best information available for each country. Notwithstanding, given the differences existing among the sources consul-

¹⁰ This chart is based on the best data available from each country. However, for the 1950s, the information available is deficient, and it is not possible to know with certainty what occurred in this period.

ted, and the sometimes fluctuating character of annual rates, locating this moment is at best an approximation.

Table 2 shows the results of this exercise. A set of indicators is also presented for each country, situated at the moment defined as the *onset* of fertility transition. The year in which the decline appears to have begun is located in the first quinquennium of the 60's for almost all countries, most of them between 1960 and 1963. There are but three exceptions: on the one hand, Mexico and Bolivia, which show a later decline (beginning of the 70's) and on the other, Haiti, a country whose fertility trend is not clear, and even appears to show an increment in the 80's (Chahnazarian, 1991; Guengant *et al.*, 1991)¹¹. In the case of Mexico, the cohort measures of fertility seem to demonstrate an earlier decline than observed with period analysis (Mier y Terán and Rabel, 1993).

The first thing to note is the similarity of the moment of the *onset* of fertility decline. At the same time, however, it is important to observe the unclear relationship between the moment of the *onset* and the heterogeneity of the socio-economic situations prevailing in the country at that moment.

This phenomenon is partly explained by the fact that the indicator used to measure the *onset* is not entirely adequate, in that it does not express the dimensions of the change produced in fertility after this moment. This can be seen clearly in Table 2, which shows two additional indicators: the percentage of decline in the ten years following the *onset* and the year after the *onset* in which fertility was reduced by 20% with respect to the value of the TFR at the moment in which the drop began. Both indicators show the dimensions of the decline in the first stage.

A first overview of these data shows the diversity of patterns of fertility decline in the countries, expressed by the indicators of fertility transition used in this study. For example, Guatemala and Nicaragua, two countries with late transitions (*onset* located at the beginning of the 1960s), show very slight drops, reaching a 20% reduction from the initial levels only in the years 1983-85. By contrast, other countries, such as Costa Rica, Chile, and Colombia, whose transitions are nearing their conclusions, began in similar years, but achieved substantial declines as early as the 1960s.

An ordinary regression analysis using as dependent variables these two new indicators (percentage of initial decline and the year in which a 20% decline of TFR is achieved) has shown that both are related to some degree to the prevailing socio-economic situation at the moment the decline begins (Table 3). Nonetheless, of these indicators, those which show significant coefficients, and which cause a significant rise in the *r square*, are: education (measured by the literacy rate) and the proportion of the active population earning wages or salaries. Of these two, the literacy rate accounts for nearly 60% of the variance, independent of the dependent variable utilized. The GDP per capita does not appear as a significant variable

¹¹ Argentina and Uruguay have been excluded of these analysis because of their distinctive pattern of fertility change, particularly the early decline in fertility.

Table 2
Demographic and socio-economic indicators in countries of Latin America
at the moment of initial decline in fertility

Country	Onset ¹		After the onset	
	Year	TFR	% decline 0-10 years	Year when TFR was 20% lower
Bolivia	1972	6.5	13.8	1985
Brazil	1960	6.2	8.3	1973
Colombia	1962	7.0	34.3	1968
Costa Rica	1961	7.3	37.5	1970
Chile	1962	5.3	28.7	1968
Dominican Rep.	1962	7.4	23.0	1973
Ecuador	1965	6.8	20.0	1976
El Salvador	1962	6.8	10.8	1980
Guatemala	1960	7.0	9.6	1985
Haiti ³	-	6.3	-	-
Honduras	1966	7.5	11.5	1985
Mexico	1972	6.6	36.4	1978
Nicaragua	1962	7.3	8.5	1985
Panama	1962	6.0	20.0	1972
Paraguay ⁴	1963	6.7	19.7	1974
Peru	1965	6.8	16.8	1977
Venezuela	1960	6.8	15.6	1972

See the second part of the table 2, p. 55.

Country	Indicators at the onset						PIB per-capita US\$ ²
	Urban population %	Literacy (15 years and more) %	% Active male in agriculture %	% Active population wage-earners %	Infant mortality rate ‰	Life expectancy at birth years	
Bolivia	41.2	65.7	57.2	38.2	151.3	46.7	270
Brazil	44.9	60.3	56.6	47.0	115.7	54.7	332
Colombia	50.9	71.1	61.3	59.0	92.1	57.9	442
Costa Rica	36.6	83.7	59.9	64.8	83.2	67.2	475
Chile	70.1	83.5	33.1	73.3	110.3	57.9	720
Dominican Rep.	32.7	65.1	63.1	42.6	117.5	53.6	315
Ecuador	37.2	69.0	60.9	48.0	113.1	55.7	327
El Salvador	38.6	50.2	70.4	65.9	122.7	52.3	350
Guatemala	32.4	34.3	76.3	61.6	125.0	45.6	322
Haiti ³	16.6	53.0	86.0	16.7	170.5	43.6	110
Honduras	26.3	49.8	73.6	41.5	130.8	50.0	281
Mexico	59.0	75.9	43.5	61.8	71.7	62.4	894
Nicaragua	41.1	50.3	71.7	56.3	130.9	48.5	304
Panama	41.8	77.5	55.6	44.6	63.9	61.7	621
Paraguay ⁴	35.9	74.9	63.9	38.8	61.9	64.4	313
Peru	51.9	65.3	51.7	47.4	131.1	50.3	493
Venezuela	66.6	61.8	38.7	60.1	80.9	59.5	914

1 Approximate date at which TFR began to decline.

2 At factor costs, 1970 = 100.

3 The year at the onset is unknown. The variables are given for the period 1960-1965.

4 The value for the % of active population wage-earners is given for 1972.

Note: The data of the socio-economic indicators at the onset have been calculated by interpolation. In the case of indicators (1) to (4) census data for each of the countries has been used. In the case of indicators (5) and (6) the estimations implied on CELADE population projections are used. For the source of indicator (7), we used the ECLAC series GDP.

¹ Approximate date at which TFR began to decline.

² At factor costs, 1970 = 100.

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Note: The data of the socio-economic indicators at the onset have been calculated by interpolation. In the case of indicators (1) to (4) census data for each of the countries has been used. In the case of indicators (5) and (6) the estimations implied on CELADE population projections are used. For the source of indicator (7), we used the ECLAC series GDP.

Table 3
Results of regression of two dependent variables of fertility decline.
Latin American countries selected

Equation	Variable		Regression Coefficient	Standard error	Constant	R square
	Dependent ^a	Independent ^b				
(1)	VAR1	Literacy	0.568*	0.122	- 17.23	0.609
(2)	VAR1	Literacy Wage-earners	0.555* 0.289	0.109 0.135	- 31.73	0.710
(3)	VAR2	Literacy	- 0.345*	0.078	1998.7	0.586
(4)	VAR2	Literacy Wage-earners	- 0.339* - 0.131	0.075 0.093	2005.3	0.640
(5) ^c	VAR2	Literacy	- 0.392*	0.039	167.9	0.905
(6) ^c	VAR2	Literacy Wage-earners	- 0.389* - 0.032	0.040 0.051	229.6	0.908

a VAR1= Per cent of decline in TFR in 10 years following onset.
 VAR2= Year in which TFR is 20 per cent lower than the TFR at the onset.
 b Independent variables are defined in the Table 2.
 c In these equations the year at the onset is also included as an independent variable.

* Significant at $p < 0.05$.

in the regressions, possibly because its effect is "absorbed" by the other mentioned variables.

It is worth noting the important predictive role played by the level of educated population in the period in which the fertility rate drops by 20%, once the initial year of the decline is included in the regression (Equation 5). The r square rises to 0.91 and does not change significantly when the percentage of the salaried population is added (Equation 6). This result is much more important in light of the fact that the tremendous changes that were produced in educational levels during the period of the decline are not taken into account.

The preceding results indicate that there is an important relationship between the dimensions of the initial drop in fertility and the two socio-economic development indicators mentioned above. While the effect of GDP per capita disappears, the importance of education and the percentage of salaried workers in the active population remains. The two indicators express two complementary aspects of development: the first shows the formation of a mercantile economy, generating the conditions necessary for a rapid decline in fertility; the second is the expression of two factors: explicit policies to increase the availability of education to the population, a demand for formal education as a way to attain social mobility. Both phenomena got strength after World War II.

Fertility transition in different population subgroups

It can be said that the preceding results are limited by the fact that they express a relationship at the national level, but do not reveal to what extent the national indicators – both those used to measure the *onset* and those which refer to the socio-economic situation of the country in a given moment – are representative of the different situations occurring simultaneously inside its borders¹². This fact could explain the difficulties of relating the initial moment of change in fertility with socio-economic indicators. One solution is to calculate the indicators for each social group, taking into account the process of change and the *onset* in each group associated with its unique social and economic conditions. Nevertheless, this focus would present a new problem in that the data available are rarely broken down into these aggregate parts, though some approximation remains possible.

At the moment of fertility transition in Latin America, great differences existed in the reproductive behavior of women. For example, in Costa Rica in 1960, while the fertility of middle and upper-middle class women with seven years of education or more (87% of the total of this class) was about four children per woman, this figure rose to more than nine among agricultural workers with less than six years of study (97% of the total of this class) (Behm and Guzmán, 1980). In Chile at the moment of *onset*, middle and upper sectors of the population had TFR of 3.5 while the rural workers' rate was 8.1 children per woman (Ruedi and Guzmán, 1989). Similar results have been obtained in other countries (Chackiel and Schkolnik, 1990).

The fertility differential by type of residence (urban/rural) approximates socio-economic fertility differentiation because the two categories are to some degree parallel. Despite the existence of important differences within each area, the urban/rural dimension offers better opportunities for study, in that estimates of this aggregate are generally more available. The data presented in Table 4 show clearly that, at the beginning of the fertility decline at the national level, in all countries, there are differences by zone that oscillate between 30 and 50%. In the urban areas, the TFR ranges from 4 to 6 children per woman, while in rural zones the rate rises to 7 to 9. These differences, although they might be less if expressed in terms of marital fertility (due to earlier and more stable marriages, and less permanent celibacy in rural areas), demonstrate the presence at the *onset* of distinct reproductive patterns, among urban and rural families, within all the countries of Latin American. In other words, it demonstrates that some groups already partially controlled their fertility while others did not.

Moreover, the data from some countries in the initial stages of their transitions (Bolivia, Guatemala and Honduras) show that in many cases

¹² It is difficult to trace a pattern in all countries of the process of fertility changes among different socio-economic groups and geographic areas; in fact, most of the efforts undertaken in this sense focus only the most recent tendencies.

Table 4
Total Fertility Rate by urban and rural residence at the onset
of national fertility decline

Country	Total Fertility Rate		Ratio rural/urban
	Urban	Rural	
Bolivia (1972)	5.3	7.5	1.4
Brazil (1960)	5.0	7.4	1.5
Chile (1962) ¹	4.6	6.9	1.5
Colombia (1962)	6.1	7.9	1.3
Costa Rica (1961)	5.7	8.9	1.5
Ecuador	—	—	—
El Salvador (1971)**	5.4	6.9	1.3
Guatemala (1960)	5.7	7.3	1.3
Honduras (1966)	5.6	8.2	1.5
Mexico (1972)	4.7	7.6	1.6
Nicaragua (1977)**	3.8	7.4	1.9
Panama (1967)	4.5	6.5	1.4
Paraguay (1963)	5.3	8.0	1.5
Peru (1965)	5.8	7.9	1.4
Dominican Rep. (1963) ²	6.0	7.9	1.3
Venezuela (1968)**	5.3	7.3	1.4

¹ "Urban" corresponds to Metropolitan Region (Santiago-94% urban); "Rural" corresponds to Region VII (53% rural).

² Accumulated fertility up to 40 years of age.

** Countries in which the estimates correspond to a year different from that denominated as the "onset" year.

— Information not available.

Source: Guzmán *et al.* 1991, Rodríguez Wong, 1983; Ruedi and Guzmán, 1989; Estrada *et al.* 1973; Behm and Guzmán, 1980; Médica, 1989; Behm and Vargas, 1984; Chackiel and Mérida, 1986; Zavala de Cosío, 1989; Epema, 1983; Behm and Rodríguez, 1984; Brizuela and Chackiel, 1988; Ferrando *et al.* 1990; Guzmán, 1980; López and Bidegain, 1989 (listed according the order the countries appears in the table).

the national tendencies are no more than an average of opposing trends occurring in different parts of the country. In Bolivia, national fertility did not show signs of change during the 1960s, despite the important changes taking place in urban areas (Torres, 1990; Guzmán *et al.*, 1991). In the case of Honduras, national fertility also showed no change during the decade, even though urban fertility rates were on the decline beginning in 1960, if not before (Chackiel and Mérida, 1986). As in Bolivia, this decline is offset by a continuing rise in rural fertility. These two cases show that the indicator of the national *onset* cannot reflect this contradictory situation.

The pre-transitional panorama is less clear; but new research is shedding light on this subject. The urban zones of the majority of the countries of Latin America (especially the metropolitan areas, or at least important sectors within them), seem to have undergone their own transitions before the rural onset¹³. So, what we know as the fertility transition at the national level, identified as having begun in most countries in the 1960s, is in fact a second transition characterized by the continuation (perhaps with greater intensity) of the urban transition (begun long before the 1960s), and the beginning – to a greater or lesser degree in each country – of this process in rural areas. Guzmán and Rodríguez Vignoli (1992) have found that in four countries studied (Chile, Costa Rica, Honduras and Colombia) the total fertility rate of urban areas was always lower than rural fertility during the period studied (1930-1960)¹⁴.

This result corroborates the idea that fertility control existed in some groups long before national fertility transition started. Thus, the changes which occurred at the national level during the decade of the 1960s may reflect new change in both zones, as a result of the extension throughout the society, of family planning practices that were previously limited to a minority of urban families with relatively high educational levels.

Other data confirm this finding (See Figure 2). For example, in Brazil, fertility estimates for three regions, which may well be indicative of resident trends, reveal that in the 1930s, the fertility rates in the regions of Sao Paulo, and especially Rio de Janeiro were already similar to those of populations which practiced some birth control. By contrast, in the North-east region, fertility was not only higher, but began to fall only in 1970. In this case, we do not know what took place before 1930, but we may well imagine a transition in Sao Paulo and Rio de Janeiro, similar to what occurred in Argentina and Uruguay. In Chile, in the first half of the 1950s, a decade before the *onset*, upper-middle-class sectors already had fertility rates close to three children per woman (Ruedi and Guzmán, 1989). In Mexico, Zavala de Cosío estimates that in the cohorts of women born between 1910 and 1930, family size in urban areas was almost two children less than in rural zones (Zavala de Cosío, 1989).

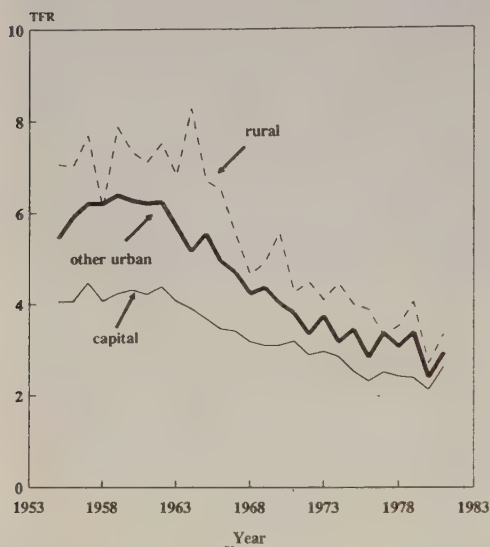
DISCUSSION

At the beginning of the 1960s, the countries of Latin America maintained, in general, high levels of fertility. The differences among them

¹³ This perspective of analysis is, in some way, similar to that of Mundigo (1990) who argues that there were two transitions in Latin America: one by the middle and upper classes with the highest educational levels, which began before 1960; and another, which was the result of the expansion of this conduct to the rest of society. Nevertheless, this author did not put emphasis on the apparent relatively stable differential between rural and urban fertility that is seen in some countries of Latin America during the pre-transitional period studied.

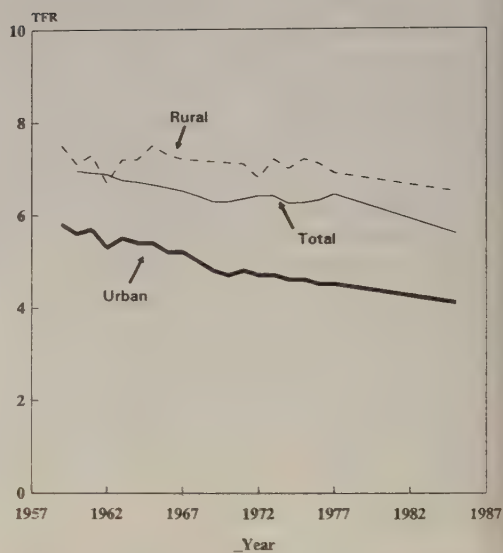
¹⁴ The same results were obtained in a similar study of pre-transitional fertility in Dominican Republic (Guzmán and Rodríguez Vignoli, 1992a).

Metropolitan Region, Chile, 1955-1981



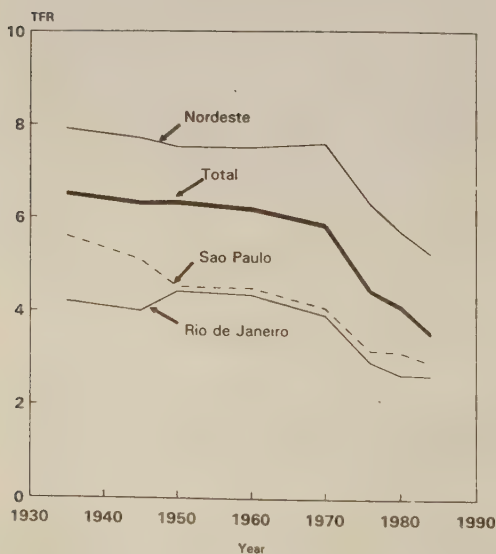
Source :
Ruedi and Guzman, 1989.

Guatemala, 1959-1985



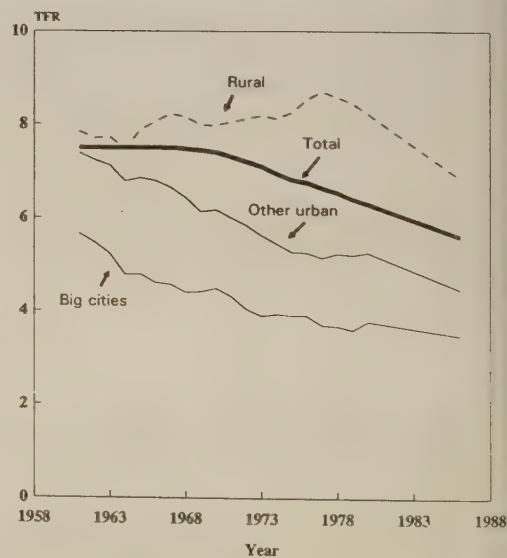
Source : 1959-1977 : Behm y Vargas, 1984
1984-86 : MSPAS, INCAP, DHS, 1989.

Brasil, 1930-1980



Source : Carvalho, 1974; Merrik and Berquo
1983; Arruda et al., 1987.

Honduras, 1960-1986



Source : 1966-80 : Chackiel and Merida,
1986 : HMPH, ASHOPLANFA, FHI, MSH (1989)

Figure 2
Total Fertility Rate by area of residence, selected countries

corresponded not only to differences in patterns of marriage and breast-feeding, but also, fundamentally, to the preponderance of those sectors which practiced, in some degree, birth control¹⁵. In fact, it was observed that before the beginning of the transition at the national level, all countries contained sectors in which some birth control was practiced. Urban sectors (generally those of the larger cities with higher educational levels) maintained lower levels of fertility than the rest. The fertility practices of this minority apparently did not spread, before the sixties, to other social groups.

The explanation of this situation could be found in the markedly elitist character of Latin American societies, and the social, economic, and cultural marginalization of the great masses of population, especially the peasantry; instead, the distinct social groups maintained their reproductive conduct in stagnant isolation, as if the social conditions which would have enabled the adoption of this conduct by a wider segment of the population did not exist. The existence of the innovative element (birth control), even if it was limited to a narrow choice, seems to be less important in the explanation of the moment of onset.

This situation changed drastically, particularly since 1960, in two ways. First, as has been previously analyzed (CEPAL, 1989), an important aspect is that until the crisis, Latin America's economic rate of growth was high, both for total GDP and per-capita GDP. This created an important and effective occupational and social mobility. In spite of the fact that many social groups did not see themselves benefitting directly from this economic development (and, in fact, distribution of income did not noticeably improve), great expectations of social mobility were created (Guzmán, 1990). These expectations express themselves both via the access to certain goods and services which are increasingly considered to be required rights, and also in the search for a better standard of living. They may have affected groups who were not direct beneficiaries, such as persons with little or no education, non-salaried workers, etc., who incorporated into their personal decisions the new logic of reduced fertility.

In other words, the economic and social changes which occurred in Latin American in the post-war period, resulting in technological changes and the demand for qualified labor, created the conditions for a mode of production in which the large families of the past were no longer necessary. The destabilisation of the high fertility of sixties is supported in this process.

Second, it is believed that the appearance and development of Family Planning Programs in Latin America in the sixties helped to diminish the cost of regulation (as defined by Easterlin, (1978): the cost of adopting birth control practices). The public and private programs of family planning, in spite of the opposition made in some countries by the Catholic church and specific political sectors, contributed both to increasing the flow of information with respect to the small family ideal and also to diminishing the social and cultural cost of adopting a new pattern of fertility. Although

¹⁵ This depended to a large extent on the socio-economic development of the country. In fact, it is hardly surprising that countries such as Chile and to some extent Brazil have lower levels than others.

it is true that they do not reach a majority of all women, they generally do aid those most in need of services, and at the same time function as legitimizers of fertility regulation (which in turn reduces regulatory costs).

It is undeniable that the role of the state goes beyond family planning programs. As González and collaborators demonstrated in a study of Brazil, Cuba, Chile, and Costa Rica, in those countries which achieved success in redistribution of social spending, class differences were diminished, and declines in fertility were more rapid, as those sectors which maintained high fertility were affected.

In summary, what we have seen, in countries of Latin America during the 1960s and 1970s, is that the ideal of a smaller family, previously confined to very limited sectors, took root among an increasing portion of the population, leading to the desire and later the practice of birth control. The moment of onset, the declining fertility process and its diversity and change, were determined by the speed with which the various social groups adopted a behavior consistent with the new conditions (i.e. the quickness with which they begin to practice birth control to attain this lower family size ideal). The process is contradictory, with some elements favoring, others delaying, the decline. The moment of the *onset* and its characteristics are related to this process.

LESSONS FOR AFRICA FROM LATIN AMERICA EXPERIENCE¹⁶

What can the experience gained from looking at Latin America teach us regarding the future development of fertility in sub-Saharan Africa?

The context in which fertility began its downward trend in Latin America was in many respects quite different from the situation obtaining in most African countries. In Latin America the decline in fertility occurred within a framework of sustained economic and social development, characterized notably by great advances in female education and child survival. The crisis of the eighties did not halt the fertility decline initiated 20 years previously. In Africa on the other hand, the economic crisis is affecting populations who had previously neither experimented with, nor assimilated, birth control practices. Those individuals who had adopted strategies which they hoped would enable them to join the modern economic sector are now reviewing their position, as shown by the observed drop in school enrollment rates.

Moreover many Latin-American states had been quick to adopt family planning policies, had ensured that they gained as large an audience as possible and that they were applied via an extensive health care network. Studies in several countries have shown that easy access to health centres and trust in health care agents by the population are powerful factors in

¹⁶ The author thanks Mme Thérèse Locoh for the conclusion of this chapter.

the adoption of birth control. The stance of African governments is, with a few exceptions, far less clear; family planning programmes in Africa are more timid, and gain a footing with more difficulty because the health care network is less dense and facilities are often badly provided for (lack of personnel, vagaries of supply..., cf. Adeokun, in this volume). A clear stance adopted by states in favour of family planning could be instrumental in bringing about a fertility transition not only by encouraging the wider use of contraceptive methods but also by making their use socially acceptable. This is what occurred in Latin America where the medical establishment played a crucial role in supporting and promoting family planning services.

Over and above the role of family planning policies there is no doubt that changes in the cost and place of children associated with social promotion strategies within the broader context of modernization was crucial in persuading people to adopt birth control in Latin America. Here again, the situation in sub-Saharan Africa is quite different. Indeed, family organization ensures that the costs of reproduction are spread out, notably via the practice of fostering.

Finally, the pre-transitional fertility regime in Latin America was different from that of Africa. Although fertility levels were similar to current levels in African countries (often higher than 6 children per woman) long periods of breastfeeding and post-partum abstinence, with the exception of some countries, were uncommon. The erosion of these traditional fertility regulating mechanisms in Africa is leading to a temporary increase in fertility and constitutes yet another obstacle to the lowering of fertility in the region.

This is only a very general comparison and, while it must be remembered that consideration of the wide range of differing situations obtaining on the two continents may somewhat temper the argument, it does not support the hypothesis of an imminent decline in fertility in Africa. Indeed, in the current precarious economic context in which strategies for social promotion have been thwarted by the crisis, thereby highlighting the need for family cohesion when confronting difficult times, why should these populations who have always valued having large families venture into the uncharted waters of birth control when the costs of rearing children can be shared, when access to contraceptive methods remains very difficult and when their use is neither valued nor given social legitimacy?

And yet, a different argument can also be adduced, one that is more favourable to the hypothesis of a rapid spread of birth control in Africa. In Latin America as we have seen, birth control was first adopted by the upper classes and spread to the rest of the population much later, together with socio-economic development and family planning policies. Probably as a result of the elitist nature of Latin-American society there was no "social diffusion" of contraceptive practice, as links between extreme social classes were very loose there, if not totally inexistent.

The situation in Africa is different: urban and educated elites tend to retain regular contacts with rural areas, take in less fortunate relatives and

also occasionally foster out their children for a time with family members who have remained on the land. Such networks could be used to spread urban patterns of behaviour, provided they were socially valued, to rural areas. Similarly, women's associations, which are often numerous and socially mixed (cf. Hammerslough, this volume), could contribute to the diffusion of innovating behaviour.

For the time being birth control seems to have been adopted by only a small minority in African countries. Is it inconceivable though to imagine that, provided with a slightly broader social base and given social legitimacy by clearly stated family planning policies, such behaviour could spread fairly quickly throughout the population?

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ABSTRACT

This document focus on the analysis of the moment in which fertility transition began in Latin America. What is observed is that in most countries of Latin America a general process of fertility decline began in the sixties. This radical change originated in an important shift in the reproductive behaviour: a new family size ideal took root among an increasing part of the population, leading to a more or less generalized practice of a birth control, that was previously confined to very limited sectors.

The diversity observed in the fertility transition in the different countries is not expressed in terms of a distinct moment in which the fertility began to decline; in fact, there is a very similar pattern of the genesis of transition. It is mostly manifested by the speed of fertility change. In this regard, the indexes of the educational level and the proportion of population earning wages and salaries seems to be the two major factors influencing the quickness of fertility decline in the region.

Fertility Transition in Asia

John B. CASTERLINE*

The declines in fertility that have occurred in Asia in the period since World War II are more comprehensively and accurately documented than transitions in any other major region of the world. Because these declines succeeded declines in Europe and North America, they have occurred under the watchful eyes of scientists fully expecting to observe fertility decline and the concerned gazes of anxious policy-makers fearful of the detrimental consequences of continued high fertility. Together these two sets of actors have ensured a steady flow of demographic measurement, through censuses and surveys, of the course of fertility transition in Asia.

Although the level of international interest in fertility transition in Asia has sharply diminished from a decade or two ago, in many respects the opportunities for scientific gain from research on fertility transition in Asia have never been greater than at present. The Asian region now offers a number of cases of fertility decline to replacement (or below replacement) levels from traditional regimes characterized by total fertility rates (TFR) in excess of 6.0. These declines, and other accompanying societal changes, are well documented. It is likely that some of the most important lessons from the Asian experience – as these might be applied in Sub-Saharan Africa, for example – are yet to emerge. In the final section of this paper I suggest lessons from the Asian experience that may prove to be applicable to Africa. My principal objective in this paper is more modest: namely, to describe the broad contours of the fertility declines to date in Asian countries and to sketch rather crudely the societal settings for these declines.

"Asia" in this paper refers to the three sub-regions usually termed East Asia, Southeast Asia, and South Asia. Islamic West Asia is omitted, because the societal setting differs much more from the other three sub-

* Population Studies and Training Center, Box 1916, Brown University, Providence, Rhode Island, 02912.

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regions than the three do amongst themselves. Most of the discussion will concern thirteen countries:

East Asia	Southeast Asia	South Asia
China Korea Taiwan	Indonesia Malaysia Philippines Thailand Vietnam	Bangladesh India Nepal Pakistan Sri Lanka

"Korea" refers to the Republic of Korea (South Korea). Japan is excluded from the discussion because its fertility decline occurred much earlier historically, and under substantially different circumstances, than other countries in Asia. For similar reasons Singapore is excluded. North Korea, Brunei, Cambodia, Laos, Myanmar, and several small kingdoms in South Asia are excluded due to sparse data.

Note that these countries have contained, in the period under examination, a very large fraction of the world's population. Included among these thirteen are three of the five most populous nations in the world – China, India, and Indonesia – and two further countries that rank among the ten most populous – Bangladesh and Pakistan.

The paper relies mainly on demographic, social, and economic data published by the United Nations, the World Bank, and other international agencies. Those familiar with the data for any particular country may wish to quarrel with some of these published figures. But I am confident that the overall portrait of fertility transition in Asia would not be very different were the data analyzed in this paper obtained from probing country-specific investigations. The figures published by international agencies serve as a useful common currency: the publications are widely available, and the methods of estimation are relatively well-documented.

PATTERNS OF CHANGE

Levels and trends in fertility

There is considerable variation among the countries of East, Southeast, and South Asia in the timing of the onset of fertility decline and in the amount by which fertility has declined to date (Table 1). Fertility declined first in East Asia and in Sri Lanka beginning in the late 1950s, followed by declines in Southeast Asia that began in the 1960s (in Vietnam in the 1970s), followed by declines in South Asia that began in the 1970s. The remaining major country in the region – Pakistan – showed signs of fertility decline in the 1980s, but the magnitude of the decline, and whether it heralds the onset of sustained decline, remain subjects of debate (Arnold and Sultan, 1992).

Table 1
Trends in the Total Fertility Rate (TFR), selected Asian nations and African regions

Sub-region and Nation	Historical period						
	1950-55	1955-60	1960-65	1965-70	1970-75	1975-80	1980-85
East Asia							
China	6.24	5.40	5.93	5.99	4.76	2.90	2.36
Korea ¹	5.18	6.07	5.40	4.52	4.11	2.80	2.40
Taiwan ²	6.62	5.99	5.10	4.22	4.00	3.08	2.32
Southeast Asia							
Indonesia	5.49	5.67	5.42	5.57	5.10	4.68	4.05
Malaysia	6.83	6.94	6.72	5.94	5.15	4.16	4.24
Philippines	7.29	7.09	6.61	6.04	5.29	4.96	4.74
Thailand	6.62	6.42	6.42	6.14	5.01	4.27	3.52
Vietnam	6.05	6.05	6.05	5.94	5.85	5.59	4.82
South Asia							
Bangladesh	6.66	6.62	6.68	6.91	7.02	6.66	6.15
India	5.97	5.92	5.81	5.69	5.43	4.83	4.75
Nepal	5.64	5.70	5.86	6.17	6.52	6.54	6.25
Pakistan	6.50	6.80	7.00	7.00	7.00	7.00	7.00
Sri Lanka	5.74	5.44	5.16	4.68	4.00	3.83	3.25
Eastern Africa	6.76	6.84	6.90	6.92	6.99	7.07	6.91
Middle Africa	5.90	5.92	5.97	6.04	6.13	6.17	6.19
Western Africa	6.78	6.83	6.88	6.90	6.89	6.87	6.87

Source: United Nations (1991), *World Population Prospects 1990*, New York: United Nations.
¹ Republic of Korea.
² Source: Hermalin *et al.* (1991), Data refer to the following years: 1952, 1958, 1964, 1967, 1970, 1976, 1982.

The total fertility rate (TFR, births per woman over her lifetime) at the onset of transition in Asia ranged between 5.5 and 7.0. Countries at the lower end of this range – Indonesia, Sri Lanka – were characterized by reproductive regimes in which fertility was restrained through means other than contraception (see Table 2): nuptiality in both countries, and in Indonesia post-partum practices as well. Countries at the higher end of this range – Malaysia, Philippines, Bangladesh, Pakistan – lacked either or both nuptiality and post-partum restraints. Note that by pre-transition Asian standards recent fertility levels in Sub-Saharan Africa are relatively high (see final rows of Table 1). The regional TFRs for 1980-85 in Eastern and Western Africa approach the highest country-specific figures in Asia, and even in Middle Africa the regional TFR of 6.19 for 1980-85 exceeds all of the TFRs observed since 1950 in Korea, Indonesia, India, Nepal, and Sri Lanka. It would appear that traditional reproductive regimes in major areas of Asia inhibited fertility to a greater extent than appears to be the case in Sub-Saharan Africa.

Table 2
Indicators of fertility and its proximate determinants at the onset of fertility decline, selected Asian nations

Sub-region and Nation	(1)	(2)	(3)	(4)	(5)
	Date ¹	TFR ²	SMAM ³	CPR ⁴	Mean BF ⁵
East Asia					
China	1970	5.99	n.a.	n.a.	n.a.
Korea ⁶	1960	6.07	21.3	< 16	18.3
Taiwan	1955	6.62	21.2	n.a.	13.6
Southeast Asia					
Indonesia	1970	5.57	19.3	9	24.1
Malaysia	1960	6.94	19.4	< 9	5.7
Philippines	1965	6.61	22.5	< 16	12.9
Thailand	1965	6.42	22.0	< 14	19.1
Vietnam	1980	5.59	n.a.	n.a.	14.5
South Asia					
Bangladesh	1975	7.02	16.4	8	28.2
India	1970	5.69	17.7	14	n.a.
Nepal	1980	6.54	17.9	7	24.9
Pakistan	1985	7.00	19.8	8	18.8
Sri Lanka	1955	5.74	20.9	n.a.	21.9

¹ Approximate year at which fertility began a sustained decline. See Table 1.
² Total fertility rate. Rate refers to five-year period adjacent to year shown in column (1).
Source: Table 1.
³ Singulate mean age at marriage for women. For year nearest to year shown in column (1).
Source: Table 3.
⁴ Contraceptive prevalence rate: percentage of married women of reproductive age using a method of contraception. For year nearest to year shown in column (1). Source: Table 4.
⁵ Mean duration of breastfeeding, in months, calculated through current status methodology. For year nearest to year shown in column (1). Source: Trussell *et al.* 1992; Millman, 1986*.
⁶ Republic of Korea.

The variation in the level of the pre-transition TFR in Asia does not fall into patterns that are simply characterized, in terms of cultural or economic systems, for example. The pre-transition TFR in Taiwan apparently was about one child greater than the pre-transition TFR in China, despite the fact that most of the population of Taiwan traced ancestry directly to the Chinese mainland. The difference between Malaysia and Indonesia of nearly one and one-half children is equally puzzling on cultural grounds. This particular difference may have been due chiefly to a substantial difference in durations of breastfeeding, about 18 months difference in the mid-1970s¹; the exceptionally early age at weaning of Malaysian infants is an anomaly in the Asian region.

¹ The mean durations of breastfeeding shown in Table 2 are obtained from WFS surveys conducted in the mid-1970s (1974 in Malaysia, 1975-76 in Indonesia). While it is safe to presume that the mean duration of breastfeeding in Indonesia was at least 24 months at the onset of transition, it is more hazardous to assume that the mean duration in Malaysia at the onset of transition was as

The important point to recognize is the diversity of reproductive regimes contained within the 5.5 - 7.0 TFR range in Asia at the onset of fertility declines (Table 2). The mean duration of breastfeeding, which apparently exceeded twelve months everywhere except Malaysia (but see note 1), nonetheless ranged from slightly over twelve months (Taiwan, Philippines) to in excess of twenty-four months (Bangladesh). Mean age at first marriage for women ranged from sixteen (Bangladesh) to twenty-two years (Philippines). Korea and Taiwan also were characterized by relatively late female age at first marriage at the onset of their declines, but in both countries female age at first marriage had risen by three or more years in the fifty years prior to the onset of fertility decline (Coale *et al.* 1981; Freedman and Casterline 1981). Despite the diversity of nuptiality regimes in Asia at the onset of fertility decline, with few exceptions the average ages at first union exceeded those observed in Africa in recent decades: even taking into account severe definitional ambiguities, it is clear that on average entrance to stable unions occurs before age twenty throughout sub-Saharan Africa.

Levels and trends in the proximate determinants of fertility

It is common to associate fertility decline in Asia with the widespread adoption of modern contraception⁴. While it is true that replacement-level fertility, as has been attained in East Asia in the 1980s and may be attained in Thailand soon, is chiefly the consequence of contraceptive practice (in combination with induced abortion), the major contribution of nuptiality changes to the fertility declines in some Asian countries is often lost sight of. In fact, in the 1970s scholars studying fertility decline in Asia were equally impressed with the changes in marital structure and in marital fertility behaviour (e.g., Retherford and Cho, 1973), and at that time considerable attention was given to the potential contribution of nuptiality transition to fertility transition.

The magnitude of the female nuptiality changes that have occurred in Asia since World War II is documented in Table 3. Apart from the Philippines (where the singulate mean age at marriage for women was already 22.1 years in 1950) and Bangladesh, the mean age at marriage has risen by at least one year in recent decades and typically by two or more years. In Korea, Malaysia, and Sri Lanka, the female SMAM has increased by roughly four years from the 1950s to the 1980s. Postponement of marriage has had a substantial impact on fertility levels in many Asian societies, as will be documented below. It is doubtful, however, that the desire to limit family size has influenced, to any significant degree, this historic

brief as 6 months. It is plausible that average durations of breastfeeding shortened substantially in Malaysia in the period between 1960 - the approximate onset of fertility decline - and the mid-1970s.

² Induced abortion is one of the major means of fertility control in the region, especially in East Asia (China, Korea, Taiwan). Accurate data on levels and trends in induced abortion are lacking. It is clear, however, that in behavioural terms induced abortion serves as a "contraceptive" method, i.e. a means to avert unwanted (or mistimed) births.

change in nuptiality patterns. (Smith, 1980, provides a comprehensive overview of the demographic, social, economic, and cultural factors that are hypothesized to have provoked nuptiality transition in Asia.)

Table 3
Trends in the timing of first marriage for women, selected Asian Nations

Sub-region and Nation	Singulate Mean age at marriage (SMAM)							
	Historical Date ¹							
	1950	1955	1960	1965	1970	1975	1980	1985
East Asia								
China		18.9					22.4	
Korea ²		20.5	21.3	22.8	23.3	23.7	24.1	24.7
Taiwan ³		21.2		21.9		23.3		
Southeast Asia								
Indonesia					19.3		20.0	21.1
Malaysia	18.4		19.4		22.3		23.5	
Philippines	22.1		22.2		22.8	23.2	22.4	
Thailand	21.1		22.1		22.0		22.7	
Vietnam								23.2 ⁴
South Asia								
Bangladesh						16.4	16.7	
India	15.3		16.8		17.7		18.7	
Nepal			16.6		17.5		17.9	
Pakistan			16.9		16.7		19.8	
Sri Lanka	20.7	20.9		22.1	23.5		24.4	

Source: United Nations (1990). *Patterns of first marriage: timing and prevalence*, New York: United Nations

¹ Data are for the available year nearest to the year in the column heading. Refer to the original source for precise date.

² Republic of Korea

³ Source: Freedman and Casterline, 1981.

⁴ Source: Vietnam General Statistics Office (1991), *Vietnam Population Census 1989*.

Turning to post-partum practices, there appears to be virtually no data on trends in post-partum abstinence in Asia. WFS and DHS data from the 1970s and 1980s indicate that all countries in the region are characterized by relatively short average durations of post-partum abstinence (i.e. under six months). It would appear that historically, and at present, only a very small minority of couples in Asia experience periods of post-partum abstinence that exceed post-partum amenorrhea in duration. As a result, the potential contribution of variation in durations of abstinence to differentials and trends in fertility is very slight. In this respect Asian reproductive regimes differ sharply from those found in Africa.

Evidence on trends in breastfeeding does exist for many countries in the region. The picture is very mixed. On the one hand, in Taiwan the

mean duration of breastfeeding fell from 13.6 months in 1968 to 2.0 months in 1985 (Millman, 1986). Less substantial declines have been observed in the Philippines (from 13.3 months in 1978 to 9.9 months in 1988; Casterline, 1991) and in Thailand (from 19.1 months in 1975 to 16.7 months in 1987; Trussell et al. 1991). Slight increases in average breastfeeding durations have also been observed: from 24.1 months to 24.9 months between 1976 and 1987 in Indonesia, and from 21.9 months to 22.7 months between 1975 and 1987 in Sri Lanka (Trussell *et al.*, 1991). Scattered bits of evidence from the region suggest that in the 1980s average breastfeeding durations have changed very little, and if anything have begun to lengthen (see, e.g., Knodel *et al.*, 1990).

Breastfeeding levels and trends in the 1980s in Asia do indicate that: (a) Declines in breastfeeding incidence and breastfeeding durations need not be a characteristic of fertility transition; and (b) Rather long average durations of breastfeeding can co-exist with low levels of fertility. Cases in support of the latter point are Sri Lanka, where the 1987 DHS estimates the TFR to be 2.67 and the mean duration of breastfeeding to be 22.7 months, and Thailand, where the 1987 DHS estimates the TFR to be 2.23 and the mean duration of breastfeeding to be 16.7 months. In terms of reproductive processes, this co-existence is not the least bit troubling, since breastfeeding inhibits fertility. Concerns have been expressed during the past decade, however, that the changes in the roles of women and children that normally accompany fertility transition are not compatible with continuation of traditional post-partum practices. This concern has been raised especially with reference to African societies. The recent Asian evidence cited here indicates that there is no fixed relationship between the course of fertility transition and changes in post-partum practices: in particular, massive fertility declines are not necessarily associated with significant changes in breastfeeding behaviour.

While it is inappropriate in light of the empirical record to ignore the contribution to fertility decline in Asia of behaviours other than contraception and abortion (most notably nuptiality), it is indeed the case that a number of these societies have experienced revolutionary adoption of modern contraceptive methods. Trends in contraceptive prevalence are presented in Table 4. Unfortunately the country-specific time-series contain many gaps, but the overall picture is clear enough, especially if one makes the very defensible assumption that prevalence of contraception was very low (e.g. below ten per cent) prior to fertility decline. As of the 1980s, levels of contraceptive use by sub-region are as follows. In *East Asia*, roughly three-quarters of the women of reproductive age use contraception; in this sub-region induced abortion is also widely employed as a means of fertility control. In *Southeast Asia*, roughly one-half of the women of reproductive age use contraception, with prevalence substantially higher in Thailand than in the other four countries. In *South Asia*, with the exception of Sri Lanka (where roughly two-thirds are contraceptive users) roughly 30% of women use contraception (with, again, considerable variation within the region, ranging from less than 10% in Pakistan to over 30% in India).

Table 4
Trends in contraceptive prevalence, selected Asian nations

Sub-region and Nation	Percentage of married women of reproductive age currently using a method of contraception				
	Historical Date ¹				
	1965	1970	1975	1980	1985
East Asia					
China				71	74
Korea ²	16	24	44	54	71
Taiwan ³	24	44	63	70	78
Southeast Asia					
Indonesia		9	18	27	38
Malaysia	9		33		51
Philippines		16	18	39	39
Thailand		14	33	48	65
Vietnam					54 ⁴
South Asia					
Bangladesh		4	8	19	25
India		14		34	
Nepal			2	7	14
Pakistan		6	5	3	8
Sri Lanka			34	43	62

Source: United Nations. (1989), *Levels and trends in contraceptive use as assessed in 1988*. New York: United Nations.

¹ Data are for the available year nearest to the year in the column heading. Refer to the original source for precise date.

² Republic of Korea.

³ Source: Chang et al.; 1987

⁴ Source: Vietnam National Committee for Population and Family Planning (1990), *Vietnam Demographic and Health Survey 1988*.

Decomposition of the fertility decline

If one compares the levels and trends in contraceptive prevalence shown in Table 4 with the levels and trends in fertility shown in Table 1, it is clear that the two move closely in step. The deduction from this comparison that Asian fertility declines have been due mainly to adoption of contraception can be documented through formal decompositions of the observed decline. I draw on five country studies. For Taiwan, Freedman and Casterline (1981) decompose fertility decline from 1955 through 1976, using the Coale indices. For Korea, Coale *et al.* (1981) decompose fertility decline from 1960 through 1975, also using the Coale indices. For Thailand, Knodel et al. (1982) decompose fertility decline from 1968 through 1978, using the Bongaarts indices. For the Philippines, Casterline (1991) decomposes fertility decline from 1973-77 through 1983-87, also using the Bon-

gaarts indices. Finally, for Bangladesh, Kabir and Uddin (1987) present Bongaarts indices that can be used to decompose fertility decline from 1975 through 1985, using the methodology of Casterline (1991):

Decompositions of change in fertility

	Taiwan 1955-76	Korea 1960-75	Thailand 1968-78	Philippines 1968-87	Bangladesh 1975-85
Nuptiality	34%	26%	16%	34%	22%
Marital fertility	81%	74%			
Contraception			90%	71%	75%
Induced abortion			22%		
Post-partum			- 19%	10%	4%
Other			- 4%	5%	
Interaction	- 15%		- 5%		- 1%
Total	100%	100%	100%	100%	100%

In all of these cases, declines in marital fertility behaviour account for two-thirds (or more) of the fertility decline. Where it is possible to distinguish contraceptive behaviour from other components of marital fertility, it is clear that increased use of contraception is the primary reason for declines in marital fertility.

One point that emerges from the decompositions for Thailand and the Philippines is that changes in post-partum practices (breastfeeding behaviour, in particular) have probably acted against fertility decline. This is related to a feature of Table 1 not commented on above: in virtually all countries in the region, fertility decline is preceded by a slight rise in fertility³. The proximate determinants, and the less direct causes, of this increase in fertility are not well understood. Among the proximate determinants, the leading candidates are post-partum behaviour (i.e., shortening of durations of abstinence and/or lactational amenorrhea) and coital frequency (Rindfuss and Morgan, 1983). It is also possible that medical advances have reduced levels of primary and secondary sterility, but this is likely to have been a minor contributor because pre-transition reproductive regimes in most Asian societies appear to have been characterized by low levels of sterility.

³ There are grounds for questioning whether the pattern of increase in fertility was as widespread as the U.N. figures presented in Table 1 indicate. Many of the figures for the period prior to 1960 have been derived by indirect estimation from incomplete data. Almost certainly the presumption that fertility increased in the 1950s (and into the 1960s in some countries) influenced the estimation of TFRs for the earlier periods. In those countries where sound data extending back into the 1950s does exist, however, it seems fairly certain that fertility did in fact increase prior to commencing a sustained decline.

SOCIETAL SETTINGS FOR ASIAN FERTILITY TRANSITIONS

I now turn to description of the major societal systems that formed the context within which Asian fertility transitions have occurred. Because the region under consideration in this paper – stretching from Korea in the north of East Asia to Pakistan in the west of South Asia – encompasses tremendous societal diversity, this brief description will necessarily be overly simplistic and incomplete.

I begin by reviewing quantitative indicators of the demographic structure and economic development status of the thirteen Asia countries at the onset of fertility decline. I then turn to salient features of their economic and social systems, and conclude with a few comments on population policy.

Demographic structure and economic development status

Conventional demographic and socioeconomic indicators are presented in Table 5 for each country, for the date I have designated as the onset of fertility decline. For comparison, the same indicators are presented for Sub-Saharan African regions at the foot of the table. The indicators selected have been commonly linked to fertility decline in theoretical discussions and in empirical research. Three demographic indicators are displayed: population density (per arable land), and two mortality indicators (life expectancy at birth and the infant mortality rate). Four socioeconomic indicators are shown: level of urbanization (percentage residing in urban areas), structure of the labour force (percentage employed in agriculture), level of income (GNP per capita, in constant 1980 U.S. dollars), and primary school attendance (primary school enrollment ratio). The latter four indicators are intended to be representative of a larger class of measures of modernization.

One cannot help but be impressed by the variation in levels of each indicator across countries at the onset of fertility decline. This picture may be somewhat misleading, because it remains uncertain whether the South Asian nations (with the exception of Sri Lanka) have commenced fertility declines of East Asian proportions. The South Asian nations as a group show higher levels of mortality and lower levels of socioeconomic modernization. If Bangladesh did indeed begin its fertility decline in the late 1970s and early 1980s, it will have done so at unusually high levels of mortality and low levels of development; but as yet one cannot be sure that fertility will continue a steady decline in Bangladesh.

Few generalizations emerge from the figures in Table 5, primarily because of the occurrence of rapid and substantial fertility declines in Indonesia and Thailand. At the onset of decline in Indonesia, mortality was relatively high (approximately the same as in Africa in the mid-1980s), less than twenty per cent of the population resided in urban areas, and the

Table 5

Indicators of demographic, economic and social structure at the onset of fertility decline, selected Asian nations and African regions

Sub-region and Nation	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Date ¹	Density ²	E ₀ ³	IMR ⁴	% Ur-ban ⁵	% Agri ⁶	GNP ⁷	Schoo-ling ⁸
East Asia								
China	1970	261	59.6	81	17	78	206	89
Korea ⁹	1960	1169	52.6	100	28	66	494	94
Taiwan	1955	1040	58.6		27	54	568	92
Southeast Asia								
Indonesia	1970	378	46.0	124	17	66	317	80
Malaysia	1960	248	52.1	82	25	63	601	96
Philippines	1965	321	54.5	76	32	57	474	113
Thailand	1965	245	56.1	95	13	82	390	78
Vietnam	1980	747	55.8	90	19	72	n.a.	119
South Asia								
Bangladesh	1975	811	44.9	140	9	78	126	73
India	1970	308	48.0	145	20	72	214	73
Nepal	1980	356	45.8	147	6	93	134	83
Pakistan	1985	408	56.5	120	30	50	336	47
Sri Lanka	1955	447	56.6	91	16	57	85	95
Eastern Africa	1985	126	47.9	126	18	84	155	68
Middle Africa	1985	124	47.6	108	34	76	302	82
Western Africa	1985	171	46.7	121	29	73	240	76

Sources: Columns (3), (4), (5): United Nations (1991) *World Population Prospects 1990*, New York: United Nations.

Columns (2), (6), (7), (8): World Bank. 1983 and 1987. *World Tables*. Washington, D.C.: World Bank.

Taiwan: Albert Hermlin, personal communication.

¹ Approximate year at which fertility began a sustained decline. See Table 1.

² Persons per square kilometer of agricultural land. For the African sub-regions, the figures refer to the mid-1970s.

³ Life expectancy at birth, both sexes.

⁴ Deaths per 1000 births, before 1 year.

⁵ Percentage of population residing in urban areas.

⁶ Percentage of labor force working in agriculture.

⁷ Gross national product per capita, in 1980 US dollars.

⁸ Primary school enrollment ratio: number of primary level students / primary-school age population.

⁹ Republic of Korea.

level of primary school attendance was relatively low. At the onset of decline in Thailand, population density was low by Asian standards, over 85% of the population resided in rural areas (and over 80% of the labour force was engaged in agriculture), and GNP per capita was unimpressive, as was the level of primary school attendance. Thus, two major Southeast Asian fertility transitions began in relatively unmodernized societies, accor-

ding to conventional indicators. In some respects the same statement applies to the substantial fertility decline in Sri Lanka, but at the onset of transition mortality levels were low and school attendance levels were high in Sri Lanka, reflecting the effective public health and public schooling systems established in that country in the decade after World War II. In contrast, it is clear from Table 5 that the East Asian transitions occurred in societies that were already relatively affluent and relatively urbanized. Of course the most populous East Asian country – China – was neither relatively wealthy nor relatively urbanized at the onset of its decline, but mortality had declined to relatively low levels and school attendance was at relatively high levels.

Thus, Asia contains a mix of fertility transitions: some that have occurred in conjunction with rapid societal modernization (Korea, Taiwan, Malaysia), others that commenced in relatively unmodernized societies that have subsequently modernized rapidly (Thailand is the most notable case of this type), and yet others that have occurred in the shadow of economic distress (Bangladesh, Indonesia). China represents yet another type that is difficult to classify, because of the role played by aggressive government policy.

Despite the variation in socioeconomic context, it may well be that the Asian transitions are in fact remarkably similar in the socioeconomic motives underlying household-level decisions about reproductive behaviour. The theme that repeatedly emerges from in-depth analyses of the motivations underlying the adoption of modern contraception in Asia is that children are perceived to have become too costly (see, e.g., Caldwell *et al.*, 1988; Knodel *et al.*, 1987; McNicoll and Singarimbun 1983). This development itself can be traced to a variety of factors that are far from constant across countries: in East Asia, affluence and the requirements for success in an economy dominated by the secondary and tertiary sectors have made children seem expensive, whereas in South Asia and some parts of South-east Asia increasing rural population densities and the lack of income growth appears to have made children seem more expensive. Nevertheless, if one reads the more qualitative investigations of the underlying causes of fertility decline in the Asian region, the homogeneity across societies in the explanations offered by those individuals participating in the radical changes in reproductive behaviour is every bit as impressive as the variation across societies in Table 5.

One summary point that emerges from Table 5, which has been made elsewhere by the Caldwells (Caldwell and Caldwell, 1988), is that the Asian experience suggests that neither mortality levels nor the socioeconomic context of Sub-Saharan African societies are incompatible with fertility decline of major proportions. With the exception of population density (which is relatively low in Africa) and schooling in Eastern Africa⁴, none of the sub-regional African averages in Table 5 fall outside the bounds set by the thirteen Asian nations on the eve of their fertility transitions.

⁴ The low primary school enrollment ratio of 68 for Eastern Africa is heavily determined by the very low figure of 36 for Ethiopia, which is the most populous country in the region.

Economic and social systems

The traditional economies throughout most of the region under consideration in this paper were founded on rice agriculture. This feature – and the labour requirements, the seasonal rhythms, etc. stemming from it – more than anything else ties these societies together. Rice agriculture takes many forms, of course, depending on climate and topography. Even so, the economic activities assigned to women and children are relatively similar from one Asian society to the next, with the exception of the Islamic and Islamic-influenced societies of South Asia where women are secluded (Whyte and Whyte, 1982).

It is extremely risky to generalize about the economic roles of women in this traditional economic system, because they are so heavily conditioned by the social system (discussed below). Let me offer a few generalizations. Intensive rice agriculture normally encourages dense settlement, because of the tremendous additional productivity conferred by complex hydraulic systems. Women are unlikely to possess, or work, separate property, instead participating as labourers on family land or as wage-laborers on other nearby land. Roughly the same applies to children. It is a system that does not encourage separation of gender work roles, although of course labour specialization (in terms of age and gender) does exist. That is, it is a system that encourages men, women, and children to be closely bound together in their day-to-day economic activity. Whether the work relationships are egalitarian or authoritarian is determined mainly by the social and cultural systems.

In their fundamental features, the traditional social systems in Asia differ to a greater extent in ways that have implications for fertility than do the traditional economic systems. Consider, for example, traditional kinship systems. The Southeast Asian societies are characterized by bilateral kinship, while the South and East Asian societies are patrilineal. It is usually posited that bilateral kinship is more conducive to positive female status, and the Philippines and Thailand are cited as evidence in favor of this proposition. In an influential article on India, Dyson and Moore (1983) also argue that differences in kinship systems underly differences in women's autonomy (and, correspondingly, fertility) between southern and northern India. South and East Asia are largely patrilineal (and typified as "patriarchal"), but the restriction of the roles and the mobility of women in Islamic South Asia would appear to be unmatched in East Asia, where the economic and social freedom of women was nevertheless severely circumscribed (see the portraits of familial and non-familial lives of adult Chinese women in Cohen 1976, and M. Wolf, 1968).

There are also important differences within the region in the extent to which the corporate kin group is a meaningful unit, in the extent to which resources are exchanged among extended kin, and in the extent to which extended kin serve as risk insurance. Surveys and observational studies during the past four decades have consistently revealed that, from the

standpoint of economic resources, Asian societies are much more highly nucleated than the normative kinship ideologies would suggest. Important variation exists, however. Filipinos draw on extended kin for support of many types (economic and non-economic) (Jocano, 1966; Yu and Liu, 1980). In Thai society, in contrast, relationships with extended kin are much less intense (Foster, 1975; Lauro, 1979); indeed, Thai society has been described as "loosely structured". Thus, although the Philippines and Thailand have bilateral kinship systems, their social structures differ in other important features that are, plausibly, associated with the rapidity of fertility decline in Thailand and the relatively slow pace of decline in the Philippines.

A natural conclusion to draw from a review of the Asian experience is that social structure is unrelated to fertility decline: after all, sharp declines have occurred in patriarchal East Asia as well as in Thailand, with its bilateral kinship system and relatively high women's status, whereas the Philippines, also characterized by a bilateral kinship system and high women's status, lags far behind Thailand in its fertility transition. I take a contrary view, which places less exclusive emphasis on social structure *per se*. Patriarchy did not nurture fertility declines in East Asia; rather, patriarchal obstacles to fertility decline were overwhelmed by economic transformations that were incompatible with high fertility. In Southeast Asia, on the other hand, the conducive social structure has encouraged fertility to decline more rapidly and farther in Thailand (and perhaps Indonesia as well) than it would have on the basis of economics alone. The lesson, if one wishes to draw one, is that the social system can have a decisive influence on fertility decline, but it can also be dominated by other factors.

Population policy

In China, the social system has been overwhelmed by state action, i.e. the deliberate and aggressive efforts of the national government to reduce fertility to near-replacement levels in an historically-short period of time. This is an extreme example of the potential impact of national governments on fertility decline. Indonesia provides another, less extreme, example of fertility decline accelerated by government efforts (McNicoll and Singarimbun, 1983).

An important feature of Asian fertility transitions is that national governments have had a major guiding role, typically through nationally-funded and centrally-administered programs that provide family planning services at the local community level. Historically family planning programs in Asia have been stronger, as gauged by conventional criteria, than programs in other regions of the world (this is evident from Freedman and Berelson 1976, and Mauldin and Lapham, 1985, see also Ness and Ando, 1984). The first explicit anti-natalist policies were enunciated in South Asia in the 1950s and early 1960s. By 1970, virtually every populous Asian country had adopted an explicit anti-natalist population policy, and most Asian countries had established a publicly-financed family planning program. Debate about the impact of these policies and programs has raged

for three decades. The fact that policies and programs were set early on in South Asia (India, Pakistan), where fertility has declined the least, demonstrates that the existence of such policies and programs offers no guarantee of the intended fertility response. Nevertheless, the consensus of those who have examined fertility transitions systematically and in-depth in specific Asian countries is that population policies and programs can significantly accelerate the decline of fertility. And in a few countries – China, Indonesia – government policies and programs have arguably been the decisive factor in explaining the timing and pace of fertility decline.

CONCLUDING REMARKS

Fertility has begun to decline in most countries in East, Southeast, and South Asia. Indeed, in some countries in this region the fertility transition appears to be largely completed. The region thus offers abundant evidence to interrogate about the nature and causes of fertility transition. I extract the following, highly abbreviated, conclusions.

Fertility has declined in Asia chiefly because couples have adopted highly effective modern methods of contraception. In the initial stages of the transition, these methods were obtained mainly through national family planning programs; it is thus difficult to deny that these programs played an instrumental role, at least initially. The societal settings for the Asian fertility declines have been highly diverse, economically and socially. Modernization, as conventionally defined, has not been a necessary condition, but in Asia at least it appears to be a favorable condition. The key factor that seems to have propelled Asian societies into sharp and inexorable fertility declines is the emergence at the household level of a conviction that children have become costly, so costly that couples who bear more than two or three children are doing substantial harm to themselves and/or their children. The demographic, economic, and social systems (in their traditional and contemporary manifestations) jointly determine whether, and when, this conviction emerges. Comprehension of the Asian experience is distorted if the critical importance of one system (economic or social) is stressed to the neglect of the other.

While there are risks in extracting lessons from the recent demographic experience of Asia and applying them to sub-Saharan Africa, not to attempt to do so is tantamount to an assertion that the Asian experience is in no respect relevant to Africa. This is an indefensibly extreme position. Fully aware that there are important and fundamental differences between the demographic, social, cultural, and economic systems of Asian and African societies, I submit the following generalizations from Asia as a back-drop to further efforts to understand fertility change in Africa and to develop programs to stimulate fertility change in Africa:

Substantial fertility control within marriage rarely occurs in reproductive regimes characterized by very early female marriage. Bangladesh

may prove the exception to this generalization in Asia. In most of Asia, the average age at first marriage of females exceeded 18 years (and usually 20 years) when the decline in marital fertility occurred. In many Asian countries this meant that the marital fertility transition was preceded by a nuptiality transition.

Maintenance of long average periods of post-partum non-susceptibility (due to lactational amenorrhea) is compatible with high levels of contraceptive use. From the Asian experience little can be deduced about the compatibility of long periods of post-partum abstinence and high levels of contraceptive use, but the latter is clearly compatible with long periods of breastfeeding.

Fertility transitions can occur under a surprising diversity of socio-economic contexts, as indicated by conventional social and economic development indicators. In this respect recent Asian experience replicates historical European experience (Knodel and van de Walle, 1979). It might be added that the Asian experience suggests that inadequate social and economic development has not, in itself, presented an obstacle to fertility transition in contemporary Africa.

Fertility transition occurs when couples become convinced that children are costly. This is the clear conclusion that emerges from in-depth studies of fertility transition in Asia. In a very general fashion, this conclusion reinforces the views of Caldwell derived from his research in West Africa in the 1960s and 1970s (Caldwell, 1982).

The association between social structure and fertility change is far from clear-cut. If one characterizes traditional Asian societies in terms of kinship systems, and in particular the roles of women and children, it does not appear that certain types of social structures are more conducive to changes in fertility behaviour, contrary to a large body of social demographic theory. This conclusion is highly relevant to the study of African fertility, for it is often claimed that African social structures are intrinsically pro-natalist and that this constitutes an important obstacle to fertility decline.

Greater accessibility of modern contraceptives facilitates fertility decline. Debates about the magnitude of the contribution of public and private family planning programs to fertility decline in Asia will surely continue, but the fact that such programs made substantial contributions in some countries (and at least a limited contribution throughout the region) now seems indisputable.

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ABSTRACT

Fertility has declined substantially in many countries in East, Southeast and South Asia. The declines are due chiefly to the use of modern contraceptives by married couples. Nuptiality change has also made a substantial contribution in many Asian countries, particularly in the early stages of transition. Substantial declines in fertility have occurred without concomitant changes in post-partum behavior. The underlying motivation for fertility decline in Asia has been the conviction that children have become costly in economic terms. This conviction has emerged in a diversity of economic, social and cultural settings. It is especially difficult to attribute much causal power to the traditional social system, specifically the structure of the kinship system. Even so, comprehension of the Asian experience is distorted if the critical importance of one system (economic or social) is stressed to the neglect of others. National family planning programs appear to have made a distinct contribution to the timing and pace of the fertility decline in many Asian countries. Comparisons with Sub-Saharan Africa suggest that fundamental features of the demographic system (e.g. mortality rates) and of the economic system (e.g. income level, urbanization) need not present obstacles to fertility change in Africa.

Fertility Transition in Zimbabwe

Marvellous M. MHLOYI*

The objective of this paper is to understand factors underlying fertility decline in Zimbabwe during the 20 year period, 1969-1988. Total fertility rate was estimated at 7.8 (Mzite, 1981) 6.7 and 5.5 for 1969, 1982-84, 1985-88 respectively. This represents a decline of approximately 2.3 children. While contraceptive prevalence is the second highest in sub-Saharan Africa, fertility levels are still above the expected. Therefore, it is possible that the observed decline in fertility (particularly between 1984 and 1988) is attributable not only to contraception, but also to other factors that may have played a role. A brief discussion of the relevant changes in the socio-economic and cultural context will clarify changes in fertility trends. Using data from the Reproductive Health Survey of 1984/85 and the Demographic and Health Survey of 1987/88, the change in the pattern of fertility between the two periods will be shown. The analysis is based on the proximate determinants linked with the socio-economic variables. Granted that deliberate adoption of contraception and the consequent fertility transition can only occur once couples desire to limit their family sizes, an attempt to understand actual factors underlying fertility transition is enhanced by analyzing factors underlying fertility preferences. A discussion of those factors is based on qualitative data¹.

THE DEMOGRAPHIC AND SOCIO-ECONOMIC CONTEXT

Demographic Background

The Zimbabwean population grew from approximately 700 thousand in 1901 to 7.6 million in 1982. The rates of growth increased from 2.4% in 1911 to 3.0% in 1982 with a peak at 3.5 during the 1940-60 period (Central Statistical Office, 1987, 1988). Available data show that crude birth rate decreased from 47 per thousand in 1969 to 39.5 in 1982. Death rates

* University of Zimbabwe, P.O. Box MP 167, Mount Pleasant, Harare, Zimbabwe.

¹ The quantitative survey was undertaken in 1984/85, in rural areas of two regions, Masvingo and Manicaland.

decreased from 15 to 10.8 deaths per thousand respectively. Corresponding infant mortality rates were 101 and 83 deaths per thousand. Life expectancy increased from 50.8 in 1969 to 57.4 in 1982.

Population density increased from 13 per square kilometer in 1969 to 19.5 in 1982. This density's potential impact on the welfare of the general African population (95% of the total population) is more serious considering the fact that the Africans were forced by the settler population to occupy the 50% of the country which was also drier and less productive.

The Socio-Economic and Cultural Context

The Colonial Era

The 1898-1980 colonial period was characterized by a creation of capitalist economies with urbanized centers. The existence and sustenance of these mainly mining and industrial centers depended on cheap African male labor, whose meager salaries were supplemented by women's agricultural production. Colonial law reinforced patriarchal governance and female subordination as women were pushed to the peripheries of such capitalist economies. A combination of land dispossession and the imposition of head taxes on every African male forced the males to migrate to urban centers to sell their labor for necessary cash. Migrating to unfamiliar urban centers to acquire a scarce resource, money (which became more important with the increased monetization of the economy), contributed to men's supremacy over women. Education increasingly became a vehicle to acquire training and skills which were needed in the modern labor market. A preference to educate sons more than daughters was inevitable, and thus widened the status gap between males and females.

The situation of women deteriorated since they had to remain *de facto* heads of households while cultivating the less productive land to feed the children. Women's increased responsibility was not accompanied by an improvement of their rights, especially in terms of land. Surplus food production increasingly became a historical reality to women. Fertility thus remained a woman's central contribution and connecting link to the husband's lineage. Agricultural production was valued more as a domestic than an economic activity, to the extent that a woman was able to feed her children. When women got the opportunity to go to school, they still received training in those areas which enhanced their domestic roles.

African marriages were governed by a separate Act from that of the settler population. The traditional customary marriage was regarded valid in regard to the legitimacy of children, their guardianship and custody, and right of succession (May, 1983) – a reinforcement of the patriarchal governance. Since women also did not own property traditionally, divorce meant forfeiting child custody, all the property acquired during the course of the marriage, and any form of claim on the man's wage earnings.

The colonial period was also characterized by a dual health system with a bias towards urban areas. Family planning was made available to the settler population in 1953, and to some segments of the African population in 1966. In 1970 field educators were deployed to educate and distribute family planning. Although such efforts were perceived as a colonial gimmick to limit the African population, they established a good groundwork for an expanded family planning program during the post colonial period.

The Post-Colonial Era

At independence, the Zimbabwe government made tremendous efforts to reverse the aforementioned imbalances. Education expanded tremendously. Primary school enrolment increased by 262% between 1979 and 1984 while the number of primary and secondary schools increased by 173% and 638% respectively (May, 1983). The crude rates of primary school education during the period 1986-88 reached 100% and the crude rates of secondary school enrollment were 49% for boys and 42% for girls (UNICEF, 1990). Similarly, the proportion of African women in the labor force increased from 39% in 1981 to 78% in 1985. This expansion was paralleled by an entry of women into previously male dominated areas.

Work conditions for women also improved. In 1985 the Equal Pay for Equal work Act put females' salary at par with that of their male counterparts. The Labor Relations Act of 1985 provided a ninety-day maternity leave at 75% salary, while women maintained their benefits: seniority, entitlement and unbroken service rights. Equal taxation between males and females was enforced in 1988. A statutory hour for breastfeeding was enacted.

Property ownership also improved. The Legal Age of Majority Act which was passed in 1982 enabled women, among other things, to own property, to contract a marriage in their own right, and also to become guardians of their children irrespective of their legal status. The Customary Law and the Primary Courts Act empowered community courts to order maintenance for deserted and divorced wives and children. The Matrimonial Causes Act of 1985 made grounds for divorce similar for both males and females, and also gave courts power to distribute property between husband and wife upon divorce. The decision on child custody was then based on the interest of children.

The health system also improved as the government adopted a comprehensive primary health care system. A number of clinics and rural health centers were set up as primary integrated care. Maternal and child health were emphasized. In 1981 Family Planning was placed under the Ministry of Health and assumed the name: Child Spacing and Fertility Association (subsequently named The Zimbabwe National Family Planning Program). Since child spacing is deeply rooted in the Zimbabwean culture, this name made a previously exotic, foreign imposed practice more acceptable and

attractive with the gradual erosion of traditional practices. The network of clinics and the community based distribution system became the major provider for family planning services.

The changes in the socio-economic and cultural context during the past decade were conducive to changes in fertility determinants and consequently, in fertility. First, education is likely to increase the cost of children, delay marriage, increase couples' awareness and receptivity to contraception, and to improve the status of women, and consequently, their bargaining power within the various relationships in which they are involved. Changes in law make the patriarchal governance tenuous. In particular, it makes marriage dissolution easier for women, while at the same time holding men financially responsible for their children, irrespective of marriage or co-residence with the mother. Thus, men would have to consider their fertility more than before. However, it is important to note that traditional customs and law will persist for some time, regardless of the formal law. Indeed, such new laws will be differently utilized by women of different socio-economic backgrounds. It is against this backdrop that changes in fertility should be assessed.

FERTILITY LEVEL

The first available fertility estimates for Zimbabwe were derived from the 1969 and the 1982 censuses and subsequently, from the 1984/85 and 1987/88 surveys. Total fertility was estimated at 7.8, 5.6, 6.5 and 5.7 which suggests that fertility increased between 1982 and 1984, paralleling an increase in contraception. This increase is misleading, resulting largely from imperfect data. Indirect estimates of total fertility rates were 8.2 and 7.1 for 1969 and 1982, respectively (World Bank, 1989). Estimates for 1982-84, and 1985-88 derived from the Demographic and Health Survey are 6.7 and 5.5 respectively. These estimates are more stable since they are averages. Thus, a continuous fertility decline occurred between 1969 and 1988.

A plot of the age specific fertility rates for 1984 and 1988 clearly shows the decline in fertility levels (Figure 1). The pattern is also changing towards a controlling regime.

THE PROXIMATE DETERMINANTS OF FERTILITY

Data on nuptiality, contraception and lactation are available in both data sets. However, the comparability of these data is slightly affected by problems of definition. Such shortcomings are discussed in the following sections. Moreover, in the 1984/85 Reproductive Health Survey there was an under-representation of the 15-19 year age group. Adjustments for this bias are made whenever necessary.

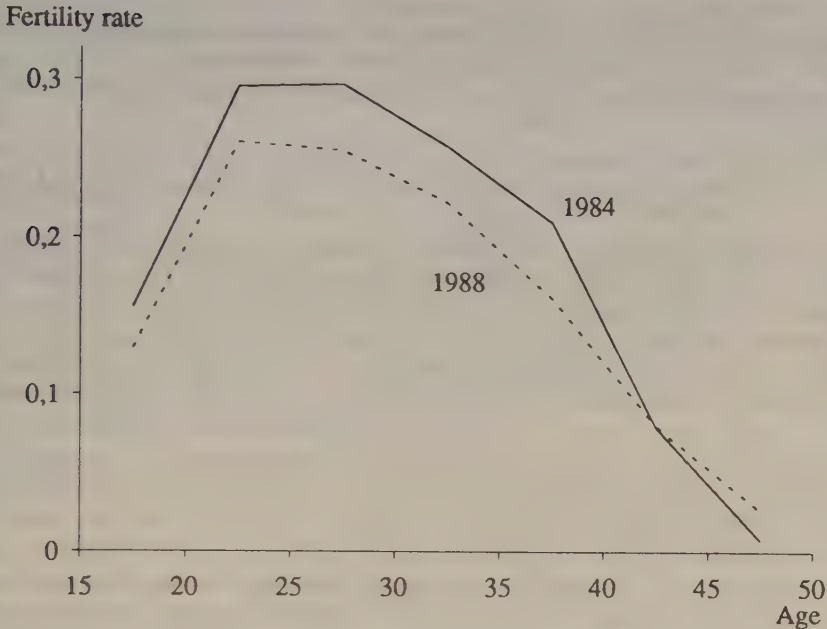


Figure 1
Age specific fertility rate for 1984 and 1988
(Source: World Bank, 1989)

Nuptiality

Table 1 shows proportions of women who are married for 1984/85 and 1987/88, respectively. Marriage remains universal as only .9% and 1.5% of the women were single after age 35 in 1984 and 1988 respectively. The marriage pattern is changing, however. The proportions currently married declined from 73.7% to 62.9%, respectively. The 1988 proportion increases when adjusted for the under-representation of the 15-19 year olds. Although entry into marriage is still early, marriage age is increasing. From 1984 to 1988, the proportion of never-married consistently increased among women aged 15-24. Part of the decline in proportions currently married is due to delayed entry into marriage. The singulate mean age at marriage was 19.8 and 20.1 in 1984 and 1988, respectively. Some decline is also due to an increase in divorce and/or separations. The contribution of increased widowhood is negligible.

How are these changes associated with the socio-economic changes discussed above? Available data do not allow an empirical analysis of the impact legal changes have on these proximate determinants. However, one would surmise, perhaps correctly, that the increase in divorce is largely due to the laws which mediated the patriarchal bias against women in the

Table 1
Marital status by age, proportions for 100 women in each age group,
ZRHS (1984), ZDHS (1988)

Age	1984				1988			
	Never-married	Married	Divorced/Se-separated	Widowed	Never-married	Married	Divorced/Se-separated	Widowed
15-19	67.5	30.2	1.4	.2	80.2	17.6	2.2	0.0
20-24	18.0	74.9	6.7	.4	28.5	61.1	10.0	0.5
25-29	6.9	86.1	5.9	1.1	6.8	82.3	9.1	1.8
30-34	2.0	88.0	7.1	2.9	2.5	85.4	9.5	2.5
35-39	.9	90.5	3.9	4.7	1.5	86.9	8.0	3.7
40-44	.5	88.0	6.8	4.6	.9	79.6	10.7	8.8
45-49	—	88.4	4.6	7.1	1.4	80.0	8.6	10.0
Total	18.9	73.7	5.3	2.1	27.0	62.9	7.6	2.5
Standardized ¹					24.0	66.1	7.9	2.6

¹ 1984 age composition was used as a standard.

event of divorce. The cultural practices of deference are challenged by education and modernization. Differences in nuptiality patterns by province parallel developmental, and especially educational differentials (Central Statistical Office, 1989).

Table 2 shows the relationship between education and marital status. Proportions married declines with education up to secondary school. Divorce and/or separation is highest among those who have completed primary school.

Table 2
Marital status by education, by place of residence
for 100 women in each category

	1984				1988			
	Never-married	Married	Divorced/Se-separated	Widowed	Never-married	Married	Divorced/Se-separated	Widowed
<i>Education</i>								
None	4.4	89.8	3.4	2.3	3.4	86.4	7.2	3.0
Primary	14.7	77.0	6.0	2.3	19.2	68.2	9.3	3.4
Secondary	48.5	45.9	4.6	.9	51.9	42.2	4.9	.6
Total	18.9	73.7	5.2	2.1	27.0	62.9	7.6	2.5
<i>Place of residence</i>								
Rural	17.4	75.9	4.6	2.1	24.2	66.7	6.7	2.3
Urban	21.9	69.6	6.6	2.0	32.4	55.4	9.4	2.8
Total	18.9	73.7	5.2	2.1	27.0	62.9	7.6	2.5

Nuptiality also varies by place of residence. Proportions married are higher in rural compared to urban areas (Table 4). This variation is also higher in 1988 compared to 1984, since the proportions married declined more in urban compared to rural areas. Again, delayed marriage varies the most.

Contraception

The level of contraception may be slightly underestimated in 1988 due to sampling and differences in definitions. The effect of the former was assessed by standardizing the 1988 rates. A separate question on abstinence was asked in 1984 but not in 1988. It is possible that women may take traditional methods for granted and are therefore more likely to report modern methods only. Thus, proportions using traditional methods may have been slightly underestimated in 1988.

Ever use of contraception increased substantially from 52.8 in 1984 to 60.4 in 1988 (Table 3). The increase is higher for married women. The very small decline in current overall contraception becomes a slight increase when standardized for age. Prevalence among currently married women increased by 4.3% points. A combination of a substantial increase in everuse with a minimal change in current use suggests short durations of use and an increase in acceptors.

The striking changes in contraception are in its quality. There is a substantial reduction (49%) in the use of traditional methods. Again, these changes are slightly more for ever married women. Contraception tends to

Table 3
Contraception by marital status, 1984 and 1988. Proportion of ever use, current use and method currently used in each group

Contraception			1984	1988	% 1988– % 1984
Ever use	All Women		52.8	60.4	+ 7.6
	Ever married		62.5	78.0	+ 15.5
	Currently married		62.4	79.0	+ 16.5
Current use	All Women		32.6	32.2 (33.8) ¹	– .5 (1.1) ¹
	Ever married		38.5	41.5	+ 3.1
	Currently married		38.8	43.1	+ 4.3
Method currently used	All Women	Modern	22.8	27.2	+ 4.4
		Traditional	9.8	5.0	– 4.9
	Ever married	Modern	26.7	35.2	+ 8.5
		Traditional	11.8	6.3	– 5.5
	Currently married	Modern	26.2	36.1	+ 9.9
		Traditional	12.6	7.0	– 5.6

¹ Standardized contraceptive prevalence rates.

Modern methods include pill, IUD, injectables, condoms, female and male sterilization and vaginal methods.

Traditional methods include withdrawal, rhythm, abstinence and folk methods.

increase with education with a slump in the secondary education group (Table 4). What is more striking is the stagnation in current use among all the educational groups except among the non-educated where it increased by 5% points. Similarly, while the shift towards modern methods applies to all the educational groups, the increase in the proportion using modern methods is higher for non-educated women. Thus, the relative gains in contraception in terms of adoption and quality are higher for this group.

Table 3
Contraception by marital status, 1984 and 1988. Proportion of ever use, current use and method currently used in each group

Contraception			1984	1988	% 1988- % 1984
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	Ever married		62.5	78.0	+ 15.5
	Currently married		62.4	79.0	+ 16.5
Current use	All Women		32.6	32.2 (33.8) ¹	-.5 (1.1) ¹
	Ever married		38.5	41.5	+ 3.1
	Currently married		38.8	43.1	+ 4.3
Method currently used	All Women	Modern	22.8	27.2	+ 4.4
		Traditional	9.8	5.0	- 4.9
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¹ Standardized contraceptive prevalence rates.
Modern methods include pill, IUD, injectables, condoms, female and male sterilization and vaginal methods.
Traditional methods include withdrawal, rhythm, abstinence and folk methods.

Variations in contraceptive use by place of residence is apparently atypical. Everuse increased more in rural areas (49.5% in 1984 and 59.8% in 1988) than in urban areas (59.3% in 1984 and 61.5% in 1988). Current use slightly increased in rural areas (from 29% in 1984 to 30.1% in 1988) and declined in the urban areas (39.6% in 1984 and 36.2% in 1988). These results suggest that the practice of contraception progressed more rapidly in cities and among educated people. With the "potential" clientele for contraception having already been largely reached, the supplementary progress, there, is minimal and is more concerned with changes in method. We can also suspect effects tied to structural differences by age between city and country.

Lactation

Changes in breastfeeding were modest. Current status data on breastfeeding was available. These data often underestimate breastfeeding since women who are breastfeeding during the time of the survey are excluded. That notwithstanding, duration of breastfeeding remains high, and increased from 16 to 17 months. Although breastfeeding generally decreases with

education, it is interesting to note that the proportionate increase between 1984 and 1988 is rather positively related to education (Table 5). Duration of breastfeeding also increased in rural areas and remained constant in urban areas.

Table 5
Mean duration of breastfeeding by education and place of residence

	1984	1988
<i>Education</i>		
None	17.6	18.3
Primary	16.5	17.7
Secondary	12.4	14.2
<i>Place of residence</i>		
Rural	16.7	17.8
Urban	15.5	15.5
Total	16.2	17.0

Results Using Bongaarts' Model

In 1984 all the three variables included in this model² depressed fertility, in order of importance: contraception ($C_c = .65$), post-partum infecundability ($C_i = .68$) and marriage ($C_m = .77$). Between 1984 and 1988 the declining effect of marriage and contraception increased by 8 and 5% points respectively ($C_m = .69$, $C_c = .60$). The post-partum infecundability effect remained constant ($C_i = .68$). Thus the decline in fertility between 1984 and 1988 can be explained by changes in nuptiality patterns and contraception. It is expected that as a country moves from a natural to a controlled regime, the relative importance of breastfeeding decreases, which is not the case in Zimbabwe for the 1984-1988 period.

Fertility Preferences

Table 6 shows that the proportion of women who do not desire any more children increased from 26% to 33%. However, this increase is among the younger age groups. Women also show a desire to space their children for longer durations. The proportion wanting to space the next child for at least two years increased from 50% to 60%; again the increase is among women who are at most 35 years. This tendency towards smaller family sizes is clearer if controlled for parity. There is an increase in both the desire for no future fertility, and to space the next child for at least two years for all the parities. For instance the proportion of women who have reached parity five and desire no future fertility increased from 26% to

² See Bongaarts, 1982.

Table 6
Fertility and spacing preferences for currently married women by age,
by parity, 1984 and 1988

	1984		1988	
	% desiring no more children	of all women desiring to have children, % who want to space for at least 2 years	% desiring no more children	of all women desiring to have children, % who want to space for at least 2 years
AGE				
15-19	8.4	44.6	3.9	60.5
20-24	3.3	61.1	9.8	75.8
25-29	10.7	48.4	18.0	62.7
30-34	18.9	47.9	36.4	54.6
35-39	42.9	43.2	48.8	40.2
40-44	73.4	31.7	65.2	26.3
45-49	82.9	5.6	70.7	17.1
PARITY				
0	1.6	21.8	4.9	35.6
1	4.7	49.8	4.5	65.2
2	10.1	52.6	16.1	59.8
3	10.0	55.4	21.3	60.8
4	20.8	56.3	28.1	69.7
5	25.8	54.4	41.1	60.3
6+	55.2	53.6	65.5	53.0
Total	26.2	50.3	32.8	59.8

41%. These data show not only that fertility transition has started, but indicate that this trend is likely to continue for some time.

PROSPECTS FOR THE FUTURE

The rapid growth of the proportion of women responding that they do not want to have any more children shows that the conceptions of the role of children and of the family are changing amongst the Zimbabwean population. The proximate determinants that we have examined allow us to evaluate *how* behaviors, that determine fertility, change. It is also imperative to understand *why* these behaviors change. Only qualitative observations can help to answer this question.

Desired and potential fertility

Technically the decision process pertaining to family size spreads over the 30-35 years of marital reproductive life span. This is a simplistic view of a process which is nurtured from youth and subjected to changing percep-

tions of what the real world offers, and how the individual views himself as fitting into this continuous dynamic process. One would posit that desired family size is redefined as one reaches important developmental stages, and also as one perceives a change in what once seemed a static reality. This decision making process is volatile and reaches the maximum level of crystallization during the marital stage. The crystallized decision ranges from one which leaves the ultimate desired number to the "Almighty", which is by default the biological maximum often suppressed by cultural practices, to that desired size to which a numeric value is attached. One's placement on this continuum is affected by one's immediate dynamic socio-economic and cultural environment, and is thus vulnerable to change. Thus, a snapshot of the desired family size provides an incomplete picture of the process itself. Part of the picture can be captured retrospectively, indeed subject to problems of memory lapse. A prospective study on desired family size and its determinants is of ideal scientific interest. However, a cross-sectional analysis (which takes the socio-economic and cultural environment in which decisions are made into account) offers practical information for ongoing policy formation and implementation. Qualitative data from a small sample in two rural areas of Masvingo and Manicaland (i.e.: Chipinge) clarify some of the changes occurring, particularly the shift towards smaller family sizes (Mhloyi, 1987). In this study, respondents were asked about their desired family size, the size of families into which they were born and the relationship, if any, between the two. Respondents were also asked of their (or their wives') potential fertility – the maximum number of children thought an individual woman was biologically capable of having in the absence of deliberate fertility regulation (Easterlin, and Crimmins, 1982).

The reported average number of children ever born per woman aged forty years and above was approximately 7. The average potential fertility perceived was approximately 11, while the desired number of children was 6.5. Thus, the perceived potential unwanted fertility was approximately 4.5 children. The respondents explained that they based their estimates of potential fertility on the fertility experience of the woman's relatives – mother and aunts. Both young males and females linked the age of woman to potential fertility.

Gender Differences: The Cultural Background

The desired number of children is affected by socio-economic and cultural variables. The relative importance of each set of variables changes over time, and differently by sex. Two competing reasons for a high number of desired children were given: the need to extend the familial line, and to increase the probability of having at least one successful child, hence an assured old-age security system. The former was emphasized by male respondents.

Some men feel strongly that their most important task is having children for the lineage. As this man from Chipinge remarked:

"Of course the size of family into which I was born affects my desired number of children. My father had too few children, only five of us and

two died. I take it to be my responsibility to perform a duty my father failed to perform adequately."

A substantial proportion of male respondents, 40%, argued that the large families into which they were born nurtured their desire for larger families. Another group, 40%, reported that the size of family into which they were born had a negative impact on their desired number of children. These respondents maintained that their parents were not able to adequately provide them with their basic needs because they were too many. While this group, like others, felt obligated to help their parents and siblings financially, they were determined to avoid a similar situation for their children. It is important to note that this group was comprised of men who reported having remitted some money to their parents. 10% reported that their natal family had no effect on their desired number of children to be externally determined (up-to-God respondents). Yet another group, 10%, with strong pronatalistic sentiments, reported that their small family sizes of birth negatively affected their willingness to limit their fertility. Consider the acknowledgement of supernatural powers:

"Whatever my wife gives me I will take. Children are gifts from God and I should appreciate them" (young Masvingo man).

On the other hand, most women (80%) expressed the view that the size of families into which they were born did not affect their desired fertility. The immediate socio-economic and cultural environments (including personal considerations) were reported as affecting the desired family size. This pattern is consistent with the society's paternalistic nature, which places the obligation of familial line extension on sons and not daughters. These women explained that their desired family size was to a large extent a cultural conformity. However, they maintained that it was their responsibility to guard themselves against maternal depletion syndrome. Indeed, there was a handful of women (a total of 5) who relegated the decision on number of children to God. All these women had reached at least parity eight.

While measurements of potential fertility may appear scientifically dubious, the actors themselves base their fertility decisions on these perceived levels. The fact that 95% of the young females report that they would like to adopt contraception for limiting births at most after parity six is consistent with their perceived excess potential over desired fertility.

Perceived Costs of children

In order to make inter-generational comparisons, the sample was subdivided into two groups: the young generation, which includes women not older than 30 years and men not older than 45 years, and the old generation, which includes those older than the respective ages. Couples of both generations reported that the costs of raising children had increased. However, generations differed to some extent on what they perceived as expenses and suitable responses to such changes. The expenses which were spontaneously mentioned by male respondents of both generations were, in order: education, food and clothing. It is interesting to note, however, that women

report these expenses in this order: food, clothing, and education. This reversed order reflects the division of responsibilities between husband and wife in the household.

The pivotal role of education as a survival strategy was emphasized by all respondents. Traditionally, land for both the production of crops and grazing of livestock was the source of livelihood. In the face of limited land and its consequent disintegration, transformation of the economy from a basically agrarian one to a modern industrial one is inevitable. Couples articulate this change and view education as the most important mode of inter-generational status transfer, and also as an essential investment into children for their subsequent marketability in the modern labor force market. As a young Masvingo man said:

"Our children will not have land for farming we do not have enough land ourselves."

Respondents also maintained that education assured a more successful future than land. An old man from Masvingo remarked: "Education is a field which is never drought stricken!"

While the relative importance of education was reported by respondents of both generations, couples differed on whether or not education costs should enter the decision making on ideal family size. The young generation respondents (approximately 75%) were more likely to argue that it is important to limit fertility to the number of children that a family can afford to educate.

The uneducated parents themselves emphasized the need to avoid a replication of their parents' mistake of failing to send them to school – a mistake to which they attributed to their inevitable dependency on subsistence farming, hence their low standards of living. Most of the old generation respondents (80%) still argued that it was not necessary to reduce fertility to a financially affordable number because they had to educate the first few children who were obliged to educate their younger siblings. Yet it is this obligation which is used as a stance on which to rebuff parental pressure against small families. Asked if his parents were supportive of his small desired family size, a young man from Chipinge remarked:

"My parents cannot tell me to have as many children as they did. How can they expect me to afford maintaining their own children plus my large family?"

In the young generation, the parents no longer expect their eldest children to help them to educate and to maintain the other children. This represents an important change.

While the increased cost of raising children was largely attributed to the increased monetization of the economy, inter-generational changes in aspirations reduced the relative income of the young generation. The young generation females maintained that with modernization the relative importance of different aspects of child rearing had increased. This is the group which emphasized the importance of clothing, for example.

Moreover, couples expressed a concern that they were reproducing at a time when the natural forces were not conducive to high fertility. Many respondents reported that, in the past, people never bought mealie-meal nor simple relish. They added that there used to be a wide variety of food crops which provided good nourishment to the children. The increased monetization of the economy was accentuated by the drought which had affected the whole country. An old man from Masvingo, which was particularly hit by drought, remarked:

"Without money there is no food. We are surviving because of the government which is giving us food. Thank God Ian Smith is gone – we could have starved."

Perceived Benefit of Children

The reciprocity of parent-child support cannot be overemphasized. For giving birth to, nursing and supporting the child, the parents deserve some form of support. This obligation is articulated by children. Parents expect their children to help them initially with simple household chores and eventually with all basic necessities, including moral support. Asked of the reason to have children one woman remarked:

"The son of mine is my father. He will take care of me when I grow old."

Parents perceive and expect a wealth flow biased towards them. As soon as the older children work for pecuniary remuneration, parents expect such children to be responsible for their younger siblings' school fees, indeed for all the other items which demand monetary expenditure. Nevertheless, virtually all parents reported that children do not help as much as in the past since they spend most of their time at school. However, parents accepted this as an inevitable change given the relative importance of education. Yet, almost all parents who had working children from whom remittances could be expected reported that they were not satisfied with the help that they were getting from their children. One old woman from Masvingo remarked:

"I really do not get enough from my children. They just help me with school fees and they do not bother sending me money so that I can hire people to work in the fields. I must be on my pension now."

The children, the young generation in this case, were cognizant of their failure to support their parents economically. However, most of them reported that they were financially handicapped, in the face of the increased living standards, to assist their parents. In a traditional agrarian society children are expected to help their parents with food and other basic necessities. Crop failures are normally attributed to natural forces. In a transitional society like Zimbabwe, parents cannot remotely assess their children's limited financial capacity largely because the costs of having children differ across generations. It was quite apparent that the flow of wealth (Caldwell, 1976) is shifting towards children which will render children

an economic burden, albeit without a commensurate westernization of the family structure.

The Locus of Decision Making

Fertility issues are more sensitive than mortality issues since fertility relates to an intimate relationship between spouses. The implicit reciprocity of this relationship is not always honored. Virtually all male respondents reported that they had the final decision on the ultimate family size since they are the heads of households (breadwinners). However, educated women tend to have more leverage in bargaining within their families. Working for cash income is a status symbol which undermines the need for status from high fertility. A woman who was teaching at a local primary school in Chipinge remarked:

"Because I also bring income which everybody – including the in-laws – enjoys I am valued more and nobody expects me to have as many children."

Few women (30%) reported that they discussed desired family sizes with their husbands. Although couples discussed the spacing of their children, most young females relegated the final decision on spacing to the husband, but maintained that the final decision on the ultimate family size was the woman's. The explanation was that couples relied mainly on withdrawal for spacing and the husband was basically responsible for its efficiency. Yet, the young females were determined to switch to modern methods which they could use without the husband's consent after they had achieved what the woman perceived as an acceptable family size. However, women reported that they felt pressured to achieve an average family size before they could tamper with their fertility. They maintained that failure to achieve an average family size is looked at with contempt, and the husband may be pressured by his kin to marry another wife. The extended family is the locus of the decision making process on family size. This presents a scenario punctuated with compromises between the latter and the wife. The husband (son) has the task of bargaining with both parties. Women were aware that if the man firmly tells his kin that he wants a small family, women would not be pressured on the assumption that their behavior is consistent with their husband's ruling (yet another indispensable quality of a married woman).

With the increased monetization of the economy, the extended family system ceases to be the basic unit of production of material goods. Control of the means of production enhances decision making relating to those issues which directly or indirectly require material goods. Currently the man is perceived as the producer of material goods, the intermediary between the kin group and the outsider (woman). The larger the production (often enhanced by higher education), the stronger the son's bargaining stance, which undermines the kin group's power. Within the nuclear family, the higher the woman's education, the higher her bargaining leverage. Thus,

with increased education and modernization, the decision making will consequently lie in the nuclear family, and equally between spouses.

DISCUSSION

Fertility transition in Zimbabwe has been a function of the changes (both intended and unintended) in the socio-economic factors that underlie fertility determinants. Improvements in education, and the regulations on divorce, child custody and maintenance have all facilitated the reduction in the durations of marriage by delaying age of entry into marriage while making marriage disruption easier. It is expected that such reductions will have a consequent negative effect on the duration of exposure to the risk of childbearing. Emphasis on the importance of breastfeeding for child health, and the provision of feeding time for working mothers mitigated against the often observed negative relationship between increased education and breastfeeding. Increased economic hardships have increased the cost of children giving rise to the need to space births more efficiently, and a preference for smaller families. The family planning program legitimizes contraception and makes it available.

In 1984 Zimbabwean fertility was below the biological maximum due to the declining effect of, in order of importance, contraception, postpartum infecundability and marriage. The observed fertility decline between 1984 and 1988 is attributed to changes in marriage and contraception since the lowering effect of these variables increased by 8% and 5% points respectively. The effect of postpartum infecundability remained constant reflecting the persistent high levels of breastfeeding. The increase in the relative importance of marriage is largely due to delayed marriage, and partly due to an increase in marriage disruption. The effect of increased widowhood is negligible. Age at marriage is positively related to education. In the qualitative reports, both males and females argued that the only justifiable reason to delay marriage for females much beyond age at menarche was education. Once a girl has entered secondary school there is tremendous pressure on her to complete both her secondary and training education and to work for at least two years before marriage (Mhloyi, 1987).

The increased impact of contraception was due to a shift towards more efficient methods and not to an overall increase in contraception. This shift was evident more among the non-educated compared to the educated. Similarly, current contraception decreased among urban residents and those with at least primary school, but increased among the rural and non-educated. Thus, overall gains in contraception during the 1984-1988 period are rather unrelated to the modernization variables, education and urbanization. The gains in contraception can thus be attributed to other contextual variables which underlie the family size desires of rural people, and also to programmatic efforts.

Qualitative data reveal that couples articulated the increased cost of raising children. The most important cost was that for education, the perceived inter-generational status transfer in the face of limited land. Education is perceived to enhance risk reduction, thereby ensuring old age security. On the other hand, education increases the cost of children while reducing their value in contributing to family production. Thus, education of the children, more than the parents, is the most important determinant of fertility during this period in a rural population. Yet, fertility is generally negatively related to education of the mother (Central Statistical Office, 1988). It enhances a woman's bargaining power within marriage, and indeed in other sexual relationships.

The reduced benefits of children are also reflected in the reported increased failure of children to meet their obligations to parents. The younger generation acknowledge their failure to meet such obligations. They attribute such failure to their low relative income which is due to an increase in taste for higher quality children, and other competing goods and services attendant upon the modernization process. The younger generation suggested fertility reduction as a response to such increased costs.

It is likely that fertility will continue to decline for a number of reasons. There is an indication of a desire for smaller family sizes. This desire for smaller family sizes is positively related to education. Thus while education operated via delayed age at marriage during the 1984-88 period, it is expected that in the next five years it will also depress fertility via increased contraception to limit family sizes as the educated cohort enters their reproductive life span. In addition the economic situation is not improving and couples, both educated and uneducated, may have to adapt by further reducing fertility.

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ABSTRACT

Fertility levels in Zimbabwe have declined steadily over the past 20 years indicating that the fertility transition has effectively begun.

The socio-economic factors underlying fertility determinants have had a considerable impact on the decline. Improvements in education and in legislation have contributed to enhancing the status of women and to weakening traditional marriage patterns. The development of a well integrated family planning programme has increased the availability of contraception as a means of coping with the rising cost of children.

The decline in fertility has been caused by changes in both marriage patterns (rising ages at marriage and, though to a lesser extent, increases in rates of marital disruption) and in contraceptive use (women resort increasingly to modern contraception while traditional methods become less popular). On the other hand, the effect of post-partum infecundability has remained constant, reflecting persistent high levels of breastfeeding.

The qualitative data show that changes in reproductive behaviour are linked to the perception of the increasing costs of children (resulting, in particular, from increases in schooling) and to the diminishing benefits that parents can hope to gain from their children.

Will the Decline in Fertility in Sub-Saharan Africa last? A time of uncertainty*

Thérèse LOCOH**

HAS A LASTING DECLINE IN FERTILITY BEGUN IN SUB-SAHARAN AFRICA?

The difficulty of collecting data

Our knowledge of fertility in sub-Saharan Africa progresses in steps as survey programmes gradually cover a number of countries there. Regularly collected national data only provide modest contributions to the study of fertility because civil registration systems are incomplete and census data are of poor quality. In the sixties, a programme of surveys was implemented in 14 French-speaking African countries. These surveys provided the raw material for the famous "Brass methods" for the indirect estimation of fertility levels from census and sample survey data.

In the seventies, realizing the vital importance of having reliable data on fertility levels throughout the world and, more especially on the, as yet little known, fertility levels in developing countries, the international community of population experts decided to initiate an ambitious project of nationally representative sample surveys on fertility.

From 1973 to 1984, 61 countries, including 42 developing countries, took part in the programme. In each country, five to ten thousand randomly picked women of reproductive age were interviewed and asked to fill in a questionnaire covering reproduction, marriage and contraception¹. The

* Translated by Isabelle Wallerstein.

** INED, CEPED, 15 rue de l'École de Médecine, 75270 Paris Cedex 06.

¹ In some countries, and notably in Africa, a special module was added that focussed on factors other than contraception that affect fertility (post-partum abstinence, durations of breastfeeding and amenorrhea).

project, funded by the United Nations Fund for Population Activities with a budget of fifty million dollars, was implemented with the cooperation of USAID (United States), ODA (Great Britain) and the states in which the surveys were conducted. To date, this is the largest social science survey programme ever organized simultaneously in different countries, using a standardized questionnaire (Cleland and Scott, 1987:1).

Two major findings came out of the World Fertility Surveys conducted in 11 sub-Saharan African countries: the stability of fertility at high levels, and the vital role played by birth spacing mechanisms – post-partum abstinence and long durations of amenorrhea produced by breastfeeding – in determining levels of fertility. The surveys also showed that most women wanted many children and that use of contraceptives was very low, except among women with secondary education.

In 1984, a new international programme, financed by the United States (USAID), was launched: the “Demographic and Health Surveys” (D.H.S.).² Data comparability was, once again, given pride of place but sections on marriage and reproduction were trimmed. Instead, sections relating to maternal and child health, only covered indirectly in the W.F.S., were expanded. In the second stage of the D.H.S. programme, surveys will be repeated after a five year interval in some countries, to show trends over time for the variables considered. One of the main objectives of the D.H.S. programme is to inform policy decisions. As A. Blanc (1991: 1) writes:

“Many of the D.H.S. findings respond to the need for more and better information to aid health and family planning programs make the best use of available resources”.

From 1984 to 1991, 36 surveys were carried out world-wide, of which 11 in sub-Saharan African countries³. To date, 53% of the total population of sub-Saharan Africa has been surveyed by the D.H.S. programme, which is quite an achievement. Surveys are due to be conducted in another 5 or 6 African countries in the years to come⁴.

Considering only those countries that are already included in the programme, West Africa (79.6%) and East Africa (52.3%) will have been better covered than central Africa (16.3%, i.e. only Cameroon) and southern Africa (2.7%, i.e. Botswana) (see map, p. 107).

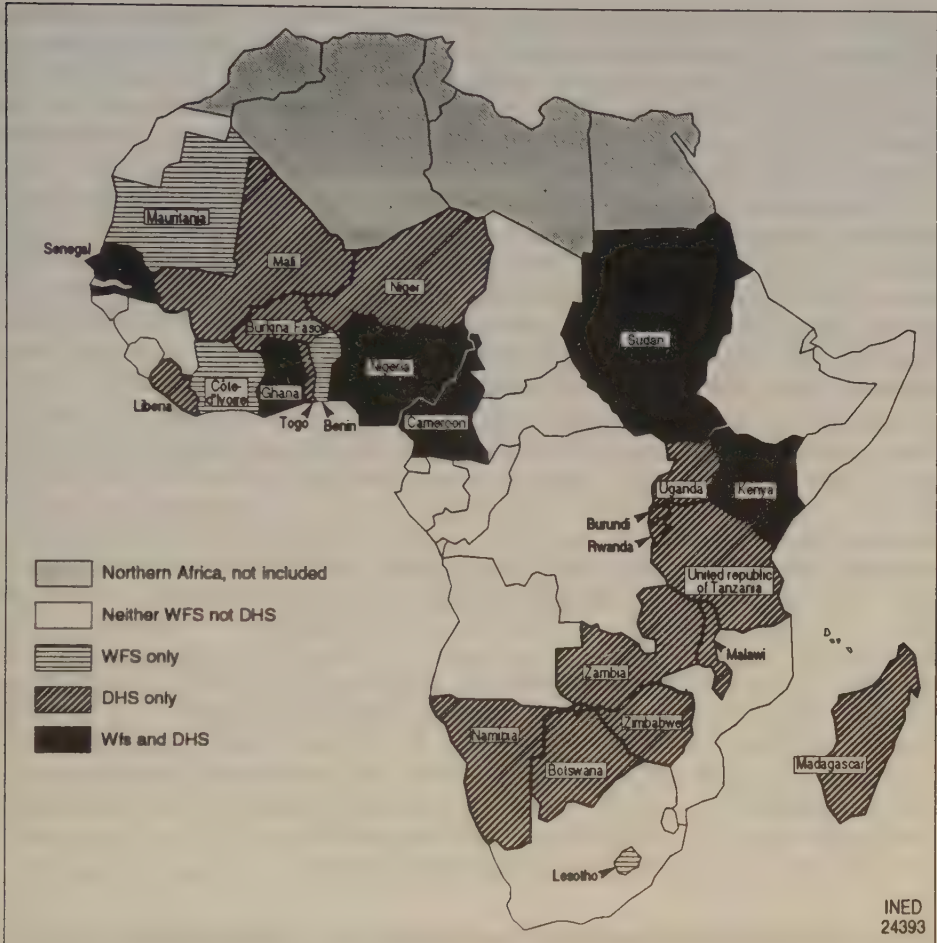
International programmes or local surveys: which is the better strategy?

On a number of counts – the use of standardized questionnaires, the availability of the data to the international community at large, the considerable scientific resources deployed, the improvement in cooperation between

² The programme is administered by IRD/Macro International, Columbia.

³ The 11 countries were: Botswana, Burundi, Ghana, Kenya, Liberia, Mali, Nigeria, Uganda, Senegal, Togo, Zimbabwe.

⁴ Cameroon, Madagascar (1991), Niger, Tanzania, Zambia (1992), Rwanda (the survey was broken off in 1990 following public disturbances but was resumed in 1992).



Countries having taken part in the WFS
and/or in the DHS Programme
(Source: Institute for Resource Development
and International Statistical Institute)

“northern” and “southern” researchers brought about – these surveys constitute a very valuable contribution to research on fertility, notably in Africa, particularly as the fertility data can be set against data on child health. However, as a result of the emphasis placed on ensuring international comparability of the data, the scope of the surveys has had to be confined to certain priority areas of research (Awusabo-Asare, 1988).

Considerable discussions and criticisms attended the decision to ask an identical set of questions, relying on the same explanatory constructs, in all countries. Comparability of the data between all the countries taking part in the multinational programmes just described is important, from the

scientific point of view. However, do these "formally" identical questions truly refer to the same concepts and realities in all the societies considered? If there are differences, then "statistically" reliable data could lead to considerable errors of interpretation. This uncertainty encapsulates the problem of attempting to conciliate the comparative approach with an accurate description of the specific sociological context of each society.

The contribution to the scientific community of the highly standardized data sets obtained from the international programmes (W.F.S. and D.H.S.) is undisputed. However, had the number of standardized questions been kept to a minimum and specific modules developed for each country or region, consisting of questions more adapted to individual cultural contexts, the same, though differently distributed, financial resources might well have produced more detailed, and thus more operational, knowledge about fertility.

Other surveys and censuses have been conducted in recent years. Censuses are fairly approximate instruments for estimating fertility levels since few of the questions asked relate to women's reproductive experience. On the other hand, other surveys which have looked at homogeneous sub-populations provide original angles of approach and data on variables not included in standardized survey programmes. Indeed, the pendulum is swinging back: after the considerable advance achieved as a result of the analysis of the "proximate determinants of fertility", researchers are increasingly concentrating on the social, economic and cultural determinants of fertility (Locoh, 1984; van de Walle ed., 1987; Quesnel and Vimard, 1988; Koffi, 1990; Lesthaeghe, 1989; Agounke *et al.*, 1991; Caldwell, 1991). For this to be possible, individual surveys need to be supplemented by community studies providing the institutional, social and economic background of societies and analysis must be conducted on homogeneous population groups. National and local studies of a region or a social group will thus complement one another.

How representative are the data available for sub-Saharan Africa?

Out of the considerable store of existing information on sub-Saharan Africa, some of it practically unknown or unavailable outside small circles (the local surveys), some of it very widely disseminated (W.F.S. and D.H.S.), it is not yet possible to obtain a full picture of the situation on the continent. The "Population Reference Bureau" regularly publishes fertility estimates for all countries, but in the latest issue (cf. Appendix) data for 9 countries are over 10 years out of date. There are still "unexplored territories" and it is often about the most deprived and the most torn by internecine conflict that least is known. What do we know of the huge expanses of Zaire apart from a survey conducted in the West of the country in 1977, of Guinea, Chad or the Central African Republic, let alone of some of the former "frontline" states of southern Africa? With their turbulent pasts it would be unwise to assume that their fertility has the same characteristics as countries for which reliable data have been collected.

Without doubt, the findings of the D.H.S. surveys have pride of place in the attempt being made by demographers to decide the crucial question as to how fertility will change in African societies in the short and medium term. By virtue of their mass and comparability the data available constitute a powerful tool of analysis but they are also open to two dangers: the first, is that findings may be generalized to the whole of sub-Saharan Africa, and the second is that analysis may be limited to the data obtained in the surveys from questions which, however sophisticated, may contain observation biases⁵. Furthermore, certain behavioural patterns that play a crucial role in changes in fertility are not comprehensively covered by D.H.S. surveys, nuptiality being an example.

It is true that the D.H.S. programme covers a very large area of sub-Saharan Africa. Participating countries include some of the poorest (Senegal, Mali) as well as some of the most well-off (Zimbabwe) in the region, but any analysis carried out using D.H.S. survey data should not be generalized without taking precautions.

FERTILITY TRENDS ACCORDING TO THE DHS SURVEYS: A CONTROVERSIAL DIAGNOSIS

Whereas the overall impression afforded by the WFS surveys was that fertility levels in sub-Saharan Africa had remained constant, the findings of the DHS surveys, in contrast, would sum to point to a decline.

A comparison of Total Fertility Rates between the different four-year periods prior to the survey would indeed seem to indicate that fertility has fallen in most of the countries surveyed, quite rapidly in some cases.

However, such a conclusion of a fairly general and sizeable drop in fertility does not bear closer scrutiny and analysis. The fertility decline is clear and significant in only three countries: Zimbabwe, Botswana and Kenya. In the other countries surveyed, trends are less clear and their interpretation requires a more cautious approach⁶.

⁵ To give one example among many: in Togo, where the D.H.S. survey asked a specific question on the practice of post-partum abstinence, 22% of women currently in a union said that they had recourse to this form of birth control (Agounke *et al.*, 1989). In the neighbouring country, Ghana, where levels of abstinence were of the same order in the W.F.S. in 1979-80 but for which the question was not asked specifically in the D.H.S., only 8% of women mention this practice.

⁶ In their comparative study of the first D.H.S. surveys, Arnold and Blanc draw a fairly cautious conclusion from the analysis of period fertility rates for the four four-year periods prior to the survey. The irregularity of some of the trends lead them to conclude: "In sub-Saharan Africa, the picture is rendered difficult to interpret by evidence of the displacement of births. In 5 of the 10 sub-Saharan countries, the Total Fertility Rate for the period 4-7 years prior to the survey is higher than the TFR for both the preceding and the succeeding periods. Thus it appears that there was a temporary increase of fertility around that time followed by a decrease. This pattern ... is thought to result from the forward displacement in time of births among older women in combination with accurate reporting among younger women... Hence, some caution should be used in evaluating these data" (Arnold and Blanc, 1990: 16).

See also, Cleland, this volume.

In recent publications, van de Walle and Foster (1990) on the one hand, Caldwell (1991) on the other, argue that the decline observed in some countries cannot be considered as heralding a general decline in fertility in sub-Saharan Africa.

In a study of the first nine D.H.S. surveys available, van de Walle and Foster preach caution, justifying their circumspection by the following arguments:

- 1- In most cases the declines have been observed from retrospective data obtained from a single survey and subject to reporting errors. The authors are also inclined, from their analysis of the P/F ratio, to suspect a bias inherent in the survey methodology, going one way in the World Fertility Surveys and the other way in the Demographic and Health Surveys.
- 2- Trends are unclear in the three countries (Ghana, Kenya and Senegal) in which both the W.F.S. and the D.H.S. have been conducted. Fertility levels seem to have fallen in Kenya; in Ghana however, identified during the World Fertility Survey as typifying a country on the threshold of a fertility decline, possibly resulting from the economic crisis (van de Walle, 1991: 6), a comparison of the TFR for the two surveys shows that fertility has not fallen: 6.47 children in 1979 (W.F.S.), 6.40 children in 1988 (D.H.S.). The authors point out that the two survey programmes (W.F.S. and D.H.S.) had very different methods of data collection and that this could explain some of the variation observed.
- 3- Possible declines in period fertility must be distinguished from a decline in completed family size pointing to lasting changes in aspirations and behaviour. Some of the declines observed may simply reflect changes in the timing of fertility (later age at marriage, more frequent marital separation...) rather than changes in quantum.
- 4- The fact that in those cases where a decline is apparent it is roughly comparable at all age groups and that there is no indication that women in the older age-groups are limiting their fertility – except in Botswana, Kenya and Zimbabwe – suggests either misreporting or longer birth intervals, which is not the same as birth limitation behaviour (van de Walle and Foster, 1990:11).

Caldwell (1991) agrees with the thesis that a rapid decline in fertility in Africa is unlikely. In his view, fertility will indeed decline in tropical Africa, but much later for most countries and will certainly not be as rapid as some socio-economic indicators used elsewhere seem to imply or as suggested by the United Nations (United Nations, 1991) and World Bank projections.

He invokes two arguments to support his contention. The first is a thesis that he has often expounded, namely that, in Africa, ideals and behaviour relating to the family in the broad sense of the term (nuptiality, fertility, relations within the family, value attributed to children) are specific to the continent. The second argument relates to the practice of authority

in the fields of politics, religion and public morality. According to Caldwell, contrary to what occurred in Asia, the young African states that gained independence in the sixties have not produced elites prepared to generate radical changes in traditional family ideals. The value attached to fertility in Africa is such that any leader who challenged the high fertility ideal would be rejected by African communities and this hinders the emergence of innovative and vigorous policies, notably in the field of family planning.

These arguments have been tested in some African societies by Caldwell himself and by many other observers. Here again, though, extrapolating the argument to the whole of the African population is perilous: recent studies and notably studies by anthropologists stress how varied the different regions of Africa are in terms of their history and the way their society has evolved; it is far from likely therefore that they should all conform to a single pattern of demographic change.

Just as it cannot be inferred, from the findings of available D.H.S. surveys, that there is a general trend towards declining fertility, neither is it possible to expect fertility levels to remain at present levels. The more probable scenario for the years to come is that increasing diversification of fertility patterns will replace the relative homogeneity seen so far in sub-Saharan Africa.

This article will examine the situation in three countries – Rwanda, Togo and Ghana – in order to show just how uncertain trends are and how they diverge from one region to another, thereby arguing in favour of research strategies that lay particular emphasis on identifying the diversity of fertility patterns in Africa as opposed to looking for a single tendency.

These three countries were chosen because the data for them were available and because of their usefulness in illustrating our point which is to show the diversity of patterns of change and how ambiguous these are in the light of the fertility trends observed in the countries studied.

RWANDA, WILL FERTILITY REMAIN AT VERY HIGH LEVELS OR IS THIS THE PRELUDE TO A FUTURE DECLINE?

At the beginning of the eighties, Rwanda ranked among the countries with very high fertility levels. The Total Fertility Rate was 8.5 children per woman in both the 1978 census and the 1983 national survey⁷ (Table 1).

These high levels would actually seem to have been caused by a rise in fertility, apparent since 1970, as shown by the average completed family size for women aged 45-49 which was 6.54 children in the 1970 survey, 7.64 children in the 1978 census and 8.29 children in the 1983 survey.

⁷ This survey was conducted using the same methodology as the World Fertility Surveys (WFS).

Table 1
Total Fertility Rates for Rwanda

	1978	1983
General fertility rate	8.5 children	8.6 children
Marital fertility rate	11.8 children	11.1 children
<i>Source: Republique rwandaise, 1986.</i>		

The improvement in the quality of birth registration in more recent surveys compared to earlier ones, may have intensified the phenomenon but cannot explain the whole of this considerable rise.

The results of the Rwanda fertility survey (1983) led to an extremely detailed study of all the factors that may have contributed to such high levels of fertility and low levels of contraceptive use (Ilinigumugabo, 1989).

Customs which contribute to increases in women's exposure to the risk of concieving

Rwanda is an extreme example of a country where traditions all converge towards maximizing fertility. In Rwanda, prolonged breastfeeding and marital separation are the two factors that determine the length of birth intervals.

Contrary to the situation in many other African countries, in Rwanda, not only is there no rule about observing a period of post-partum abstinence, but sexual intercourse is ritually prescribed on several occasions after childbirth (when the new-born's umbilical cord drops off, when the baby grows his first tooth). Sexual intercourse at these times is mandatory even if the parents are separated, as it is believed that non-observance of the practice may place the new-born's life at risk (Ilinigumugabo, 1989: 20).

The only "bulwark" against short birth intervals is the length of post-partum amenorrhea (11.1 months in 1983) associated with the breastfeeding period (average duration 21.1 months at the same date), producing an average birth interval of 31.1 months (Ilinigumugabo, 1989). Any shortening of the breastfeeding period or the progressive replacement of breastfeeding by bottle-feeding, will shorten the period of amenorrhea and the length of birth intervals. This is already occurring in urban areas.

The ambiguous role of nuptiality

Marital practices in Rwanda, a predominantly Christian country, differ substantially from the practices usually observed in sub-Saharan Africa. Nonetheless, they too seem to encourage high levels of fertility (Ilinigumugabo, 1989).

The Rwanda Fertility Survey (1983) shows that all groups (rural and urban populations, the illiterate as well as the literate) are delaying age at first union⁸ but that this pattern, though conducive to lower completed family sizes, is almost entirely offset by the timing of fertility resulting from the shortening of birth intervals. Marital fertility has risen slightly and produced very high total marital fertility rates of 11.8 children per woman (cf. Table 1).

The study of interactions between fertility and nuptiality in Rwanda offers another surprise. Whereas polygamy is often, and for good reasons, cited as being a practice that encourages large families, fertility in Rwanda is very high, despite a largely monogamous pattern of nuptiality (only 18% of women are in polygamous unions).

Marital instability (1.2 union per woman) which reduces, all else being equal, the length of exposure to the risk of conceiving, is declining among educated urban women. This greater stability is one of the reasons why levels of fertility among educated women are high in spite of the fact that these women are beginning to use contraception (mainly periodic abstinence). This runs counter to the argument, often propounded whereby the appearance of stable couples with strong emotional links leads to the lowering of fertility. *Temporarily at least*, "the greater stability of "modern" couples in Rwanda would seem to be a factor promoting an increase in completed fertility" (Ilinigumugabo, 1989: 229).

Significant ethnic differentials

The national fertility survey in Rwanda also showed very clear inter-ethnic fertility differentials. The Total Fertility Rate was 8.7 children for Hutu women and 6.6 children for Tutsi women. Ilinigumugabo (1989: 227) attributes this difference to longer breastfeeding durations among rural Tutsi women. In urban areas, however, the converse is true: Tutsi women, being more educated, have shorter breastfeeding durations than Hutu women. Breastfeeding practices thus seem to be the main factor explaining fertility levels and differentials in Rwanda.

Awareness by the political class of the problems raised by high fertility levels, but little change in the reproductive behaviour of the population at large

In the 1983 survey, at age fifty, one in two women had at least 8 children and one in three had 10 children or more. Rwanda and its neighbour, Burundi, have the highest population density in Africa (270 inhabitants per sq.km.). All Rwandans are familiar with the concept of over-population. In the 1983 survey, 87% of women and 93% of men thought that the population was growing fast. However, half the women considered that this was "a good thing" and the other half considered it

⁸ The mean age at first marriage was 21.3 years in 1983 (Republique rwandaïse, 1986: 79).

to be "a bad thing". More men on the other hand, saw this population growth in a negative light (54% compared to 30.5% who saw it as a favourable factor). The shortage of land and food are the two reasons most frequently mentioned by those who consider population growth to be "a bad thing".

All those interviewed, both men and women, called for government action to counteract rapid population growth. Very few however, were prepared to alter their fertility objectives and behaviour. Only one third of men and one fifth of women in the 1983 survey stated that they wanted no more children and only 12% of women interviewed said that they practiced birth control (of whom 9% practiced periodic abstinence).

In spite of increasing awareness of the problems posed, even in daily life, by the growing population, there has been very little increase in use of contraceptives since 1983. According to a recent survey, 3 to 4% of women had recourse to modern contraception (ONAPO, 1989).

The government of Rwanda considers that fertility levels are too high and is aware of the urgent need for concerted action to reduce the rate of population growth, estimated at about 3.7% per annum (May et al., 1990: 21). A national organization, the National Population Bureau (Office National de la Population, ONAPO), responsible for population policies and their implementation, was created in 1981 but family planning infrastructure is largely ineffectual and, according to J. May (1990: 22), is unable absorb the financial means placed at its disposal.

Fortunately, the D.H.S. Survey initiated in Rwanda in 1990, which was interrupted for two years because of the political turmoil in the country, has been completed in 1992. A second round in a country where fertility behaves in such a paradoxical fashion will be of great value. Has the fertility rise of the seventies persisted? Or was it, as has been the case in other countries, the harbinger of a future decline (Dyson and Murphy, 1985)?

Which factors could determine such a decline?

As far as nuptiality is concerned, mean age at marriage is already greater than in most other African countries and yet this has had no effect on fertility levels. For fertility to decline, the reproductive behaviour of couples will have to change drastically and age at first marriage will have to rise even more. Therefore, family planning services should also be rapidly expanded to cover the whole country. The trend in fertility observed between 1983 and 1990, the insufficiencies of the health and administrative infrastructures, as well as the more or less open hostility of the Catholic Church to family planning services do not give much ground for hope.

TOGO, AN AVERAGE STABILITY CONCEALING DIVERGENT TRENDS

Data on Togo abound following several independent regional surveys conducted there in the South-East (Locoh, 1984) and the South-West (Quesnel and Vimard, 1988) in 1976, and in the North (Agounke *et al.*, 1991; Pilon, 1991) in 1985. In 1988, a D.H.S. survey provided data collected at a national level for the first time thereby reshaping the very imperfect picture of the situation previously obtained from estimates based on census data.

According to successive censuses, the Total Fertility Rate, calculated indirectly using Brass's methods, appears to have remained relatively stable: 6.5 children in 1961 (demographic sample survey), 6.6 children in 1971 (post-national census survey, Adognon, 1980), and 6.0 children in the 1981 census.

The D.H.S. survey findings indicate that fertility levels in 1988 were slightly higher than those observed in the 1981 census⁹, with a Total Fertility Rate of 6.6 children per woman, 0-4 years prior to the survey.

A comparison of national averages at different periods shows that fertility levels are stable but this apparent stability conceals inequalities between regions and between urban and rural areas. Two surveys will serve for an analysis of these differences. The first was conducted in South-West Togo, on the Dayes Plateau in 1976 and shows differences in the determinants of fertility between two groups, an indigenous group, the Ewe, and an immigrant group, the Kabaye. The second survey, conducted in 1985, studied the Moba-Gurma, an ethnic group from the North of the country, initially looking at fertility levels in their rural environment of origin, but was then extended to Lomé in 1990 to include those who had emigrated there. Table 2 lists the fertility indicators observed in the two regional surveys as well as in the 1988 D.H.S. survey.

South-West Togo: disparities within the same region according to status in the production system

The demographic survey of the Dayes Plateau (Quesnel and Vimard, 1988) shows, among a large number of other findings, a trend towards increasing differentiation of demographic patterns between the indigenous population (Ewe) and the immigrant population (Kabaye). At the time of the survey and following a period of population growth and rising fertility, the Ewe who owned the land in this region of cash crops (coffee and cocoa), were showing signs of lower fertility resulting, in the authors' view, from

⁹ Deaths were greatly under-reported in this census and this must certainly have also affected births (under-reporting of early neo-natal deaths).

Table 2
Togo. Nuptiality and Fertility Indicators

TOGO	DAYES 1976		MOBA		DHS 1988	
	Ewe	Kabye	Lomé ¹ 1990	Rural 1985	Urban	Rural
Total Fertility Rate ³ last figure available	7.02 (1976)	7.75 (1976)	6.20 (1990)	7.80 (1985)	4.76 (85-87)	6.88 (85-87)
T.F.R. penultimate figure available	—	—		7.10 (1981)	4.96 (82-84)	7.18 (82-84)
Proportions never married:						
15-19	73%	83%	—	—	89.2%	61.5%
20-24	19%	4%	—	—	41.1%	13.1%
Mean age at first marriage (years)	19.4 (all)		19.6	17.9	19.7 ²	17.9 ²
% Women in polygamous union	32.0%	50.0%	64.5%	54.4%	47.1%	54.5%
Birth interval (months)	—	—	37.4	34.7	—	—
Length of abstinence (months)	21	20	11.6	17.5	13.5	19.0
Breastfeeding duration (months)	19.5	22.8	20.0	26.4	18.6	24.0
% Using a modern contra- ceptive method (women in union)	2.0%	0.0%	—	—	6.5%	1.7%
% Using any contraceptive method including absti- nence	—	—	—	—	32.3%	34.5%
% Practicing periodic absti- nence	21.0%	3.0%	—	—	9.4%	5.1%
% Women who want no more children	—	—	—	—	28.9%	23.2%
% Women liable to use contraception and who intend using it	—	—	—	—	25.0%	20.0%
Infant and Child mortality rate (0-5 yrs.)(per 1000)	102	176	—	181	131	168

¹ Migrants² Median age³ TFR: 15-49 yrs. for Dayes and Moba; 15-44 yrs. for DHS 1988

Sources: Dayes 1976: A. Quesnel and Vimard, 1988; Moba: E. Agounke, P. Levi, M. Pilon, 1991; DHS, 1988: A. Agounke, M. Assogba, K. Anipah, 1989

the rapid transformation of marital lifestyles¹⁰ arising in turn from changes in the way land was allocated and production was distributed to each spouse.

¹⁰ Later ages at first marriage, increases in union break-ups (particularly at the woman's initiative), reductions in polygamy (because of a lack of resources ...) were its main manifestations.

Recourse to an immigrant labour-force, the Kabye, necessary at a time of crop expansion, had also made it possible for many Ewe children to attend school. This desire to increase schooling levels of children, together with the arrest in economic growth, probably led to a new perception of the cost of children among the Ewe (for a more detailed analysis, cf. Vimard, Guillaume and Quesnel, this volume). Post-partum behaviour (abstinence and breastfeeding) is comparable among the two groups (Table 2) but the practice of periodic abstinence, by 21% of Ewe women compared to 3% of Kabye women, clearly points to a heightened desire to limit fertility among the Ewe.

Among the immigrant population however, demographic patterns of behaviour remained relatively stable. The precariousness of their status as share-croppers means that they depend for their income on family labour and this feeds into the desire for large families. Added to that, childhood mortality levels are higher and schooling of girls less common than in the indigenous population. The result is differential timing and intensity of reproductive cycles in the two ethnic groups (Quesnel and Vimard, 1988:151)

Such diverging trends among two sub-populations living in the same eco-system proves the importance, if future changes are to be understood and predicted, of local studies when they can show the interrelation between production systems and marital and demographic patterns. Whereas so much attention is devoted to changes in contraceptive practice which, manifestly, still only have a marginal effect on fertility levels in many countries, this survey shows the need for more systematic and multidisciplinary studies of all aspects of changing marriage patterns and the importance of including the status of social groups in production systems in such studies.

Fertility among the Moba: from the country to the capital, perceptible changes

According to the D.H.S. survey, fertility levels are highest in the savannah region in the extreme North of Togo: the total fertility rate for women aged 15-44 in the three-year period prior to the survey was 7.95 children on average. It is in this region also that the median age at first marriage is lowest (16.5 years), that the proportion of illiterate women is highest (87.3% compared to a national average of 58.2%), that breastfeeding periods and post-partum abstinence are longest (26.2 months and 23.7 months respectively). This region seems to have remained peculiarly untouched by the forces of transition that can affect reproductive behaviour.

The main ethnic group in the region, the Moba, were surveyed in 1985 (Rey, 1988, Pilon, 1991) in their environment of origin. Another survey, of those who had migrated to the capital, Lomé, was conducted in 1990.

The fertility estimate obtained from the survey in the rural areas was fairly consistent with the D.H.S. fertility estimate: period fertility (TFR) was 7.8 children on average. However, whereas the D.H.S. survey for the

region as a whole found a recent fall in fertility¹¹, the survey on the Moba showed that fertility had risen (cf. Table 2). Infant mortality in the region had fallen by 50% between the nineteen-forties (1q0 = 200 per thousand) and the seventies (1q0=100 per thousand in 1975).

Pilon (1991) and Rey (1988) offer several reasons explaining why the improvement in child survival did not lead to a desire for smaller families. First of all, the "retreat of death" is not yet perceived as being there to stay and therefore behaviour has not yet adapted. Secondly, the changes in economic activity, whether migratory movements, the planting of cash crops or the introduction of animal traction, all encourage the use of labour-intensive techniques and sustain the demand for children. Division of labour between the sexes means that although animal traction enables men to cultivate more land it also increases the amount of weeding to be done by the women, this being their allotted task. To improve their meagre resources, women find it in their interest to use their children as labour.

New economic activities integrated into ancestral social practices thus sustain the desire for children, even when mortality is falling, not because of some cultural inability to change, but as an attempt by women to minimize the constraints that weigh them down.

Moreover, the survey showed that durations of post-partum abstinence and breastfeeding tend to be much shorter among younger women. Use of modern contraceptives is negligible. The only contraceptive method currently available from the Togolese Association for Family Welfare (Association togolaise de bien-être familial, ATBEF) in the region is the condom, distributed by health workers. Its use is mainly limited to extra-marital relationships and its impact on fertility levels is barely perceptible. Family planning actions are too limited to induce changes in behaviour.

Choosing to migrate to the capital, in the South of the country, is not unconnected with fertility levels. Moba women living in Lomé have more children (6.2) than the average Lomé woman (4.1 according to the 1988 DHS survey), but they have fewer than women who have remained in their original environment (7.8 children, 1985, Table 2).

Two things should be stressed. First, first marriage and entry into reproductive life occur at a later age in Lomé and can partly explain the lower levels of fertility that Moba women experience there (cf. Table 2). Secondly, the birth intervals of migrants in Lomé are longer than those of their sisters in the North (37.4 months in Lomé and 34.7 months in rural Moba country) in spite of shorter breastfeeding and abstinence periods, which seems to imply recourse to contraceptive methods or to marital separation among these new-comers to the city. The rhythm method is by far the most popular. In their conclusion to a survey on Moba women living in Lomé, Agounke *et al.* (1991) write: "It is clear that the fertility of Moba women in Lomé has entered a transitional phase".

¹¹The total fertility rate for women 15-44 would seem to have fallen from 9.1 in 1982-84 to 7.95 in 1985-87.

Wide fertility differentials between rural and urban areas

The 1988 D.H.S. survey revealed the extent of fertility differentials between rural and urban areas of Togo. The Total Fertility Rate at 15-44 years was 4.76 children in urban areas and 6.88 children in rural areas. Differences with Lomé are even wider since the Total Fertility Rate there was 4.1 children for the period 1985-87 (Agounke *et al.*, 1989). Of all the countries included in the D.H.S. programme only Kenya and Zimbabwe have such wide differentials. Yet Togo has never had a national family planning programme, as has been the case in Kenya for the past 20 years and, as can be seen from the situation in the health sector and the level of schooling among women, the level of social development is much lower than in Zimbabwe. Neither can the decline in fertility, limited to towns and more particularly to Lomé, be explained by significant levels of use of contraceptives as those of Zimbabwe and Botswana. Only 6.5% of urban women were using a modern method of contraception at the time of the D.H.S. survey, with a figure of 6.9% for Lomé, levels that are extremely low.

How can these "low" period fertility levels (in African terms) be explained? Official pronouncements (both rare and not very explicit) and family planning services, few and far between, and providing services of doubtful quality (Kotokou, 1991, Locoh, 1989), have not contributed much to these changes. In fact, only a quarter of women liable to use family planning in the future say that they will, one day, do so (D.H.S., 1988, Agounke *et al.* 1989).

The decline in fertility levels in Lomé is linked to changes in marital behaviour (in particular variations in spousal residence) and also to the use of various contraceptive (and abortifacient) methods not listed among the "modern family planning" methods (Locoh, 1991).

Full understanding of the *causes* of the decline requires reference both to *cyclical factors* – the depth of the crisis in the eighties, following on from a decade of misplaced euphoria (nationalization of phosphates and plans for major civil engineering projects) – and to *structural factors* – a rapid fall in infant mortality in Lomé and, more importantly, the increasing autonomy of women in economic matters, gradually reflected in the strategies adopted in terms of marriage and family formation.

The women of Lomé have learnt to identify the economic, residential, marital strategies that ensure their autonomy as best (or as least bad) as possible. Some, in the current economic crisis, have also begun to take control of their fertility, but do so mainly by recourse to traditional methods or methods that are culturally within their ken (recourse to the rhythm method, purchasing contraceptives from stall holders, adopting various modes of spousal separation). Recourse to abortion unfortunately occurs frequently and has become "run of the mill".

Modern methods are not well known and are only obtainable from the medical system from which young unmarried girls are most often excluded. Advice on family planning is given in an authoritative tone and clients are generally not given a choice but must put their trust in the method prescribed by the family planning agent, who "knows" and imposes this knowledge on the client (Kotokou, 1991).

Is the current fertility decline observed in Togolese towns and particularly in Lomé, merely the result of a temporary fluctuation in fertility levels or is it indicative of a more lasting trend? The hazards of the economic situation in the city over the past twenty years have certainly had some bearing on the decline but it is also a reflection of longer term changes in marital situations. It is legitimate to conclude from the data available that Lomé is experiencing the beginnings of a fertility transition.

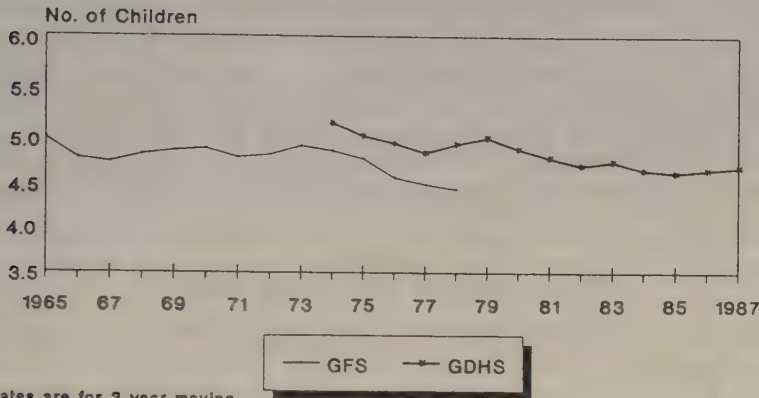
An important consideration is whether the behaviour of urban women heralds changes about to affect the whole of the country or whether it is merely due to a selection effect which draws the more educated, the more economically enterprising, the more "innovative" women to towns; in which case the fertility decline would remain circumscribed to urban areas and not spread to other categories in the population for a long time to come. This, indeed, is what is currently occurring in Togo: considerable fertility declines in towns and in some rural "islands" (a few longstanding plantation areas), high and stable levels of fertility everywhere else.

GHANA, A COUNTRY OF SURPRISING STABILITY

Ghana, a much more densely populated neighbour of Togo and a country whose economic future at the time of Independence was much more promising, is also paradoxical in many respects. Leading country in sub-Saharan Africa in the sixties, both economically and ideologically, Ghana was the first country in the region to adopt a population policy enshrined in a document, the "Population Planning for National Progress and Prosperity" (1969). The reduction in fertility levels was explicitly stated as a quantified priority objective: the aim was a population growth rate of 2.5% per annum in 1985 and of 1.3% in the year 2000. Ghana was one of the first African countries to adopt a programme for the creation of family planning services. Finally, Ghana was long one of the most advanced African countries in terms of education.

Doubts regarding the downward trend in fertility

The decline in Ghanaian fertility, apparent from the retrospective data of a single survey (both in the World Fertility Survey and in the D.H.S. survey), becomes suspect when the figures for the two successive surveys are compared at identical dates (cf. Figure 1).



Note: Rates are for 3 year moving averages, except 1978 and 1987.

Ghana DHS 1988

Figure 1

Cumulated Age-Specific Fertility Rates for women 15-34, 1965-1987 – Ghana Fertility Survey (1979-80) and Ghana Demographic and Health Survey (1989).

Source: Ghana Statistical Service, 1988.

It would seem that retrospective reporting leads to a displacement of some births back in time thus producing artificial fluctuations in total fertility rates. Furthermore, other observation biases may have compounded this further. Owusu (1984) had concluded that there was a clear under-estimation of childhood mortality in the 1979 W.F.S. survey, which could also have resulted in an under-estimation of births (children dying at young ages). Moreover, the economic crisis that violently shook Ghana in the second half of the seventies led to the emigration of large numbers of young men who went to neighbouring countries to look for work. Both these factors – the under-estimation of some births and the shortage of young men – may have contributed to the apparent fall in fertility in the period immediately preceding the 1979-80 survey (W.F.S.).

If the cumulated age-specific fertility rates at ages 15-34 are compared in the two surveys, the period fertility for the 1974-79 period estimated from the retrospective questions of the D.H.S. survey are higher than the same rates in the previous survey (W.F.S.). It is obvious, therefore, that fertility trends are not declining.

Okiero W. Asenso (1991) submits that “possible fluctuations” in fertility around an almost stable level accompanied the serious economic disturbances in Ghana. It is true that the crisis may well have led to a delay in marriages and more frequent separations between couples, which would momentarily have pushed fertility down. The period of the Economic Recovery Programme (from 1984) would have led to the return of numerous migrants and to a slightly better economic situation conducive to the formation of new unions. Detailed analysis of period data is not possible from

the survey data. This is a pity since it would contribute to an understanding of the effects of the economic cycle on fertility.

Although the demographic situation in Ghana is better documented than that of many other African countries – two national fertility surveys have been conducted as well as a number of more localized surveys – it is still difficult to tell from the data available how fertility will change in the future. The comparison of World Fertility Survey (WFS) and D.H.S. findings shows how conjectural some of the results are (cf. Table 3).

Table 3
Ghana. Nuptiality and Fertility Indicators

GHANA	WFS 1979-1980 ¹			DHS 1988 ⁴	
	Capital	Urban	Rural	Urban	Rural
Total Fertility Rate last figure available	5.4	6.3	6.8	5.13 (85-88)	6.63 (85-88)
T.F.R. penultimate figure available		6.93 (all)		5.20 (82-84)	6.90 (82-84)
Proportions never married:					
15-19		69.1%			75.6%
20-24		15.4% (all)			22.6% (all)
Mean age at first marriage (years)	18.6	18.3	17.9	18.7	18.1
% Women in polygamous union	30.1%	33.0%	35.8%	28.3%	34.5%
Length of abstinence (months)	7.8 ²	8.9 ²	11.8 ²	12.2	14.1
Breastfeeding duration (months)	14.4 ²	16.9 ²	20.0 ²	17.5	21.4
% Using a modern contracep- tive method (women in union)		5.5% ³ (all)		8.1%	3.9%
% Using any contraceptive method including abstinence		9.5% ³ (all)		19.6%	9.9%
% Practicing periodic abstinence		0.7% ³ (all)		8.6%	5.1%
% Women who want no more children	16.5%	12.0%	10.5%	28.0%	20.6%
% Women liable to use contraception and who intend using it	–	–	–	26.3%	25.6%
Infant and child mortality rate (0-5 yrs.)(per 1000)		127 (all)		131.1	162.5

¹ Central Bureau of Statistics Ghana, 1983, unless otherwise indicated.
² Gaisie, 1984.
³ United Nations, 1987.
⁴ Ghana Statistical Service, 1989, D.H.S. Report.

Was the higher childhood mortality level of 1988 due only to an under-estimation of deaths in 1979 as already mentioned (Owusu, 1984) or did the deterioration of the health care infrastructure in the country play a part?

As far as the proximate determinants of fertility are concerned, trends are unclear. The only perceptible change is a slight increase in proportions still single before 25. The proportion of women in polygamous unions has hardly altered even in urban areas.

The calculation used to obtain mean durations of breastfeeding and mean durations of abstinence was not the same; it is therefore difficult to credit the slight increase in these durations observed in 1988 as having any significance.

Fertility differentials between urban and rural areas were noticeable but remained lower than in Togo (cf. Table 3) and levels remained fairly stable during the last two periods prior to the survey.

What has changed between the two surveys is the proportion of women who say they want no more children, much higher in 1988. It is therefore all the more striking to note that, in a country known for its extensive family planning programme, levels of use of modern contraceptives have not changed in the last 10 years (approximately 5% in both surveys). The small increase in proportions using any method may be entirely due to the practice of periodic abstinence (unless the women who mentioned abstinence were classified under the "periodic abstinence" category as the D.H.S. report for Ghana suggests [Ghana Statistical Service, 1989, D.H.S. Report: 38]).

Population policies and family planning services: twenty years for nothing?

The objectives of the 1969 document outlining the population policy for Ghana have not been attained. Some of the necessary infrastructure had been established by 1970, but in 1972, already, the hazards of Ghanaian political life had imperiled the development of the national commissions responsible for population policy and for co-ordinating actions with international organizations. The various bottle-necks and the loss of effectiveness of the family planning services can probably be attributed to these political problems. Ghanaian demographers themselves (Kumekpor, Batse and Twum-Barimah, 1989) felt that "one of the major problems preventing the effective development of family planning services has been and continues to be the lack of political will" (p. 378). They also point out that, all too often, family planning services are only to be found in the health centres where badly paid staff are responsible both for supplying contraceptive services and for dealing with all the emergencies of a health centre.

Furthermore, young unmarried girls, although identified as one of the target populations for family planning campaigns, are generally so badly received that they are reluctant to ask for contraception (Huntington *et al.*,

1990; Bleek, 1987). However, the relative failure of family planning programmes should not be attributed solely to the institutional problems facing the Ghana National Family Planning Programme (GNFPP). It is also due in part to the economic and social chaos with which the country has had to struggle and to the fact that, as a result of present conditions, the demand for children remains high (Kumekpor *et al.*, 1989: 389).

This discussion of recent Ghanaian data remains speculative since both hypotheses are plausible: either levels are actually stable but concealed by observation biases, or trends are basically stable but with temporary fluctuations occurring as a result of current socio-economic conditions. The hypothesis of a "Kenyan" type change, where 20 years of seemingly ineffective family planning at last begin to bear fruit, seems unlikely except in a very distant future, as family planning services in the two countries have very different histories.

Whichever hypothesis is chosen, the case of Ghana is unique and rich in lessons. It shows that:

1- a strictly defined population policy, specifically aimed at reducing population growth, cannot suffice to produce lower fertility levels.

2- neither is a drastic economic crisis sufficient, contrary to what is sometimes propounded, to initiate a change in reproductive behaviour, at least not for Ghanaian societies.

3- the components of marriage (age at first union, length of separation in a union, break-ups) are very sensitive to fluctuations in the economic cycle and could explain some of the fluctuations in fertility levels.

WHAT LESSONS FOR THE FUTURE ?

The essential and unrecognized role of nuptiality

All the surveys mentioned in this analysis show that marital practices play a key role in the changing of fertility levels. In Rwanda, in the absence of contraceptive practice the stability of modern couples contributes to the rise in fertility. It has often been predicted that the "westernization of couples" would be a clinching factor in deciding them to have recourse to birth control; the example of Rwanda shows that is not always the case.

In many West African countries where proportions practicing polygamy are high and remain stable, spousal separation promotes the adoption by each spouse of separate strategies, generally incompatible with lower demands for children and with the use of family planning methods (Fapohunda and Todaro, 1988). Several studies have shown, quite correctly, that polygamy is one of the factors that promotes high levels of fertility, but here again, the example of Rwanda shows that a country with low rates of polygamy can also have very high fertility levels.

In Togo (Locoh, 1988) the downward trend in fertility (the Ewe of South-West Togo and Lomé) seems to be determined by marital instability and differences in the residential status of spouses (high proportions with separate residences). Changes in nuptiality are highly dependent on changes in production systems. If the impact of nuptiality on fertility is to be better understood, purely demographic analyses will have to be supplemented with studies that look at marital practices in the context of the economic situation of the society in question.

Demographers tend to lay much store on the analysis of variables related to entry into reproductive life but the marital life cycle in Africa is very complex, involving break-ups, switches from one pattern to another (becoming polygamous, returning to the monogamous state...), temporary separations (with the migration of one or the other spouse), none of which has been sufficiently studied. The high proportion of female heads of household in Ghana, for instance, is an indicator of such separations whether temporary or more lasting.

The persistence of the preference for large families

High levels of fertility remain the *archetype of socially acceptable behaviour* in the three countries presented here and in many other African countries even if educated urban minorities who want to give their children a good education adopt different attitudes. A conjunction of cyclical and structural factors have probably led to the recent decline in fertility levels as just demonstrated for the capital of Togo and, probably to a lesser extent, for Accra. Will the decline soon extend to rural areas? This is far from certain for, as indicated by several surveys, with the exception of a few privileged areas, the objective conditions which encourage people to have large families continue to exist in those areas where women participate in agricultural production and have very narrow decision margins in view of their status within the couple and the lineage that they belong to.

The norms that regulate family "institutions" – the status of individuals according to their sex and age, assignment of available labour power and of goods produced by the family, rules governing bridewealth – continue to be vital and still insufficiently understood determinants of reproductive behaviour.

There are two approaches to the analysis of reproductive behaviour. One highlights the strong "demand" for children (Frank, 1987, Caldwell, 1991, Locoh, 1989), the other stresses the importance of the "demand" for family planning (Westoff and Ochoa, 1991). The proponents of the latter approach have developed a concept derived from the replies obtained in family planning surveys, the "unmet need for family planning" to express what they consider to be the "demand" for family planning. The concept covers women who want no more children but also includes women who say they want a child "after two years". An extremely broad definition is thus given of this demand by counting women who say they want a child "after two years" among those who express an unmet need for family plan-

ning. Moreover, the true demand of women is disguised by calling "demand for family planning" what is often only the expression of a "demand for birth spacing" – which is so common in African society. The questions asked do not indicate whether the women who say they want to space their births are dissatisfied with traditional spacing methods. If many women do indeed want to control their fertility by recourse to spacing rather than by limiting births then this cannot be termed an "unmet need for family planning" in the strict sense of the term.

Table 4 demonstrates this very clearly. The proportion of women who have no intention of using contraception at some later date, in spite of being classified among those who, theoretically, have an "unmet need for family planning", is greater than 50% in all of West Africa as well as in Burundi and Uganda. The proportions are also 34% in Kenya and 40% in Zimbabwe and Botswana, the three countries most open to family planning.

Table 4

Intentions regarding future use of contraception among current non-users. Women currently in a union and who may use family planning in the future. Distribution for one hundred women

Country	Has no intention of using contraception later	Intends using within 12 months	Intends using later		Sample size
West Africa					
Ghana	57	20	23	100	2750
Liberia	57	32	11	100	3311
Mali	83	11	6	100	2811
Senegal	77	11	12	100	2986
Togo	55	19	26	100	1623
East Africa					
Burundi	56	12	32	100	2436
Kenya	34	53	13	100	3483
Uganda	71	12	17	100	3025
Zimbabwe	40	35	25	100	1504
Southern Africa					
Botswana	40	47	13	100	2740

Source: DHS Surveys.

As a result of this imprecision in its definition, the concept of "unmet need for family planning", used in widely disseminated brochures without having been properly checked, tends to give currency to the idea that a high demand for contraception exists, thereby justifying the supply of family planning services as constituting a major solution to the problem of rapid population growth. Obviously, supplying contraception is important but there is a danger, that by mistaking the true nature of women's demands,

errors will be made in implementing strategies. The experience of the past twenty years is proof of that.

The low impact of family planning services

This sub-title may strike a provocative note at a time when three countries are showing signs of a fall in fertility due, in part, to the efforts of family planning services.

It is worth noting that the three countries – Botswana, Kenya and Zimbabwe – are very much ahead of other countries in the region as regards decisive factors, the lowering of infant mortality and women's education.

With the exception of these three countries, what is striking rather, is the ineffectiveness of family planning programmes in the light of the means deployed. The following lessons can be drawn from the analyses presented here on Rwanda, Ghana and Togo:

- In spite of official pronouncements, in their day-to-day operations, family planning programmes are not supported by a strong political will. The downward trend in fertility in Ghana, which has an official population policy targeted at lowering fertility, is less pronounced than in neighbouring Togo (at least in towns) where there has never been an official population policy and which seems reluctant to adopt one.
- The quality of family planning services leaves much to be desired, otherwise why do women, even in urban areas where couples want to plan their families, have recourse to contraception services so seldom, and turn to the illicit supply of so-called contraceptive products that they buy in the market (Assogba and Locoh, 1985) or, more serious still, to abortion. A number of practices characteristic of some African family planning services – the exclusion of certain categories of women, the low level of information provided, the authoritarian prescription of a method, the use of contraceptives that are illegal in developed countries – all dissuade a number of potential clients. Consulting family planning services in a society where the value attached to fertility is still paramount can well be perceived as a “dangerous” undertaking. All the more reason then to ensure that as secure as possible an environment is provided for women and couples who ask for contraception. The “Community Based Distribution” initiative is still too recent and not sufficiently documented to determine whether it provides an adequate solution to these problems.

The ambiguous role of the economic crisis

Crises, the high population density of some regions, have not, so far, been the catalytic agents of fertility change. That is the lesson to be drawn from the cases of Rwanda and Ghana. All those, and they are many, who,

without admitting it, expect the economic crisis, exacerbated by structural adjustment programmes, to persuade populations to limit their fertility should meditate the case of Ghana. In spite of 15 years of severe economic hardship and although it has had a family planning programme for some twenty years, fertility levels in Ghana have remained stable (apart from occasional short-lived downward fluctuations).

The crisis and the effects of structural adjustments, by depriving part of the middle classes of jobs in the wage-earning sector, may indeed further motivate a small fringe of the urban population to limit its childbearing; but the crisis also has an impact on the population as a whole by drastically curtailing spending on health and education, the two key variables in changing fertility behaviour.

It is clear that the crisis currently sapping African economies is aggravating inequalities in terms of access to jobs and to community services (schools and health centers in particular). In the less privileged regions and social strata, the traditional reaction in the face of a crisis could well be activated. Families may take refuge in the concept of "children as security in old-age" when they see that other sources of economic security are undermined, particularly as the health of children may well deteriorate and it is already patent that school enrollment rates for girls have decreased in these underprivileged regions.

CONCLUSION

A lot of work still remains to be done if we are to gain a better understanding of "African fertility patterns". The improved control of demographic growth, which is evidently crucial, does not only require changes in the social order: improvements in sanitation, in schooling levels and in the status of women; such changes must also be accompanied by specific measures devised with each socio-cultural group in mind. The same solution will not work for all social groups.

We have just devoted two decades to promoting the supply of family planning services as a near universal solution. Experience has taught us that, with two or three exceptions, this approach cannot succeed in sub-Saharan Africa. Women and couples who want to control their fertility will often have recourse to means other than modern contraception. Family planning services must be available to those who want them, but that is not the only means available by far for ensuring lower fertility levels. For such a revolution in behaviour patterns to occur, societies will have to undergo fundamental changes requiring a consensus; a transformation of this magnitude cannot be achieved by merely applying a set of techniques. Moreover, it is inefficient and counter-productive to offer standardized solutions to all countries and to all social groups.

At the collective level, some of the "rushed" solutions that were implemented have led to defensive reactions and have delayed acceptance of

family planning. Conversely, at the individual level, some of the reluctance shown about accepting the distribution of contraceptives has also delayed the use of contraception by women wanting to do so.

It would seem, from all we know, that the next 25 years will see the dawn of the fertility transition in sub-Saharan Africa. All our present knowledge regarding former trends indicates that the transition will adopt varied routes, including temporary increases in certain regions and in certain countries (Kenya until the eighties, Rwanda until now, for instance). To assist the transition and to ward off negative effects in certain sectors, our tools of analysis and diagnosis must be honed further, not only at a national level but also at the level of each socio-economic sub-group.

APPENDIX

Country	1991 Mid-year Population	TFR (children per woman)		Last available data on fertility
		1987	1991	
West Africa				
Benin	4.8	7.1	7.1	EMF81
Burkina Faso	9.4	6.5	7.2	Rcst85
Cape Verde	0.4	5.1	5.6	Rcst80
Côte d'Ivoire	12.5	6.7	7.4	Rcst88
Gambia	0.9	6.4	6.5	Rcst83
Ghana	15.5	6.5	6.3	DHS88
Guinea	7.5	6.2	6.1	Rcst83
Guinea Bissau	1.0	5.4	5.8	Rcst79
Liberia	2.7	6.9	6.8	DHS86
Mali	8.3	6.7	7.1	DHS87
Mauritania	2.1	6.9	6.5	Rcst88
Niger	8.0	7.1	7.1	Rcst88
Nigeria	90 ^a	6.6	6.0	DHS 1991
Senegal	7.5	6.7	6.5	Rcst88
Sierra Leone	4.3	6.2	6.5	Rcst85
Togo	3.8	6.6	7.2	DHS88
East Africa				
Burundi	5.8	6.4	7.0	Rcst89
Comores	0.5	7.0	7.1	Rcst80
Djibouti	0.4	6.5	6.6	Rcst83
Ethiopia	53.2	6.7	6.8	Rcst84
Kenya	25.2	8.0	6.7	Rcst, DHS89
Madagascar	12.4	6.1	6.6	Enq.dem. 74-75
Malawi	9.4	7.0	7.7	Rcst87
Mauritius	1.1	2.3	2.0	Rcst83
Mozambique	16.1	6.1	6.3	Rcst80
Uganda	18.7	7.0	7.4	DHS88
Reunion	0.6	2.7	2.3	Rcst88
Rwanda	7.5	8.5	8.1	Enq.dem 83
Seychelles	0.1	3.5	2.6	Rcst77
Somalia	7.7	7.1	6.6	Rcst87
Tanzania	26.9	7.1	7.1	Rcst78
Zambia	8.4	7.8	7.2	Rcst80
Zimbabwe	10.0	6.5	5.6	DHS88
Central Africa				
Angola	8.5	6.4	6.4	Rcst83 (prov.Luanda)
Cameroon	11.4	5.9	5.8	Rcst87
Central African Republic	3.0	5.9	5.6	Rcst75
Congo	2.3	6.8	5.9	Rcst84
Gabon	1.2	4.5	5.0	Rcst80
Equatorial Guinea	0.4	5.6	5.6	Rcst83
Sao Tome, Principe	0.1	5.4	5.4	Rcst81
Chad	5.1	5.9	5.8	
Zaire	37.8	6.1	6.1	Rcst84
Southern Africa				
South Africa	40.6	4.6	4.5	Rcst90
Botswana	1.3	6.7	4.9	DHS88
Lesotho	1.8	5.8	5.8	Rcst86
Namibia	1.5	6.4	5.9	Rcst70
Swaziland	0.8	6.5	6.2	Rcst86

Source: Population Reference Bureau, 1991.

Note: Countries without any available data after 1980 in italics.

^a Provisional data, 1991 census

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ABSTRACT

Although some countries in sub-Saharan Africa seem to be well on the way to demographic transition, in most countries fertility levels have remained stable. Why this persistence of high fertility levels when fertility has declined in most other developing countries? The article attempts to provide an answer to this question by analyzing the data available for three African countries still characterized by an overall stability in their fertility levels: Rwanda, Togo and Ghana. The similarity in overall fertility levels in Togo and Ghana, in spite of great differences in the history of their family planning programmes, raises the question as to the effectiveness of these programmes. As for Rwanda, high fertility levels there, are associated with late age at marriage for women and low levels of polygamy, two factors that are generally quoted as producing lower fertility levels.

Analysis of data for these three countries does show that fertility levels that are stable on average can mask differences that may exist both between and within countries: between urban and rural areas but also between regions. Certain social groups are already showing signs of limiting their fertility even in those countries where fertility appears not to have budged. Taking account of changes in nuptiality patterns and economic factors – such as recent economic and social history, the repercussions of the crisis... – seem to be essential if we are to gain an insight into the first stages of fertility transition in sub-Saharan Africa.

Male Nuptiality and Fertility in Southern Benin*

Florentin DONADJÈ** and Dominique TABUTIN***

There is a worldwide paradox in fertility studies: the surveys used for the classic, descriptive approach are all based on samples of women; the more explanatory approach acknowledges the crucial importance of the family context and man's involvement in the decision-making. In Africa, as was the case elsewhere in the past, men are frequently in control of the marriage market, having much greater freedom of choice and scope of action than women. Their role is central in the reproduction system.

It seems surprising, therefore, that so little attention has hitherto been paid to that sex. In model tables and population dynamics, a distinction is often made between male and female fertility¹, but very few studies and surveys² have attempted to measure male fertility, or – perhaps more importantly – to investigate men's perceptions, aspirations and behaviours. How can African fertility transitions – or non-transitions – be explored without knowing what African men want, without having at least an inkling of their marriage or fertility strategies³?

It was to fill this gap that a survey⁴ devoted specifically to men's nuptiality and fertility history, opinions, aspirations and behaviour was conducted in Benin in 1989. Some of the survey data on fertility and nuptiality indicators are presented below. We then investigate the links between marital regime (stability, type of union...) and fertility and analyse some results with respect to opinions and behaviour.

* Translated by Linda Sergent.

** FNUAP, B.P. 506, Cotonou, Bénin.

*** Institut de démographie, Université catholique de Louvain, 1 Place Montesquieu, 1348 - Louvain-la-Neuve, Belgium.

¹ See, for instance, M. Karmel (1949), R. Beaujot (1973), N. Brouard (1977) and W.J. Paget and I.M. Timaeus (1990).

² For Africa, there were none until the 1980s; see, for instance, G. Pison (1982) on the Bandé Fulani of Senegal. In the first phase of DHS programme, only two African countries (Mali and Burundi) included "male" questions in their schedule.

³ But investigating only men is just as unsatisfactory as only women. How long will it be before truly "family surveys" are conducted?

⁴ For a short presentation of the survey, see the Appendix.

First, a short description of the socio-cultural context in Benin⁵. Despite the country's ethnic diversity (some 50 ethnic groups in all), there is a certain homogeneity in the kinship systems, which are generally patrilineal, like the systems of property devolution. Social control over fertility is exerted by the extended family and ancestor worship. As is frequently the case in Africa, a child almost always belongs to the father's kin group.

F. Donadjè (1990) writes that:

"In Benin, the man holds the key functions in the family, and is responsible for ensuring its perpetuation. As regards fertility, the difference between men and women illustrates this clearly: a father adds a child to his family circle, while a mother contributes to expanding her husband's family circle. In the first case, men are encouraged by their family to have children, in the second, women assert their position in their husband's family by having children."

If we agree with L. Apostel and W. Callebaut (1978) that: "the strategy adopted by women is defined by the idea they have of that adopted by men", it is necessary to consider not only what women think and do, but also what men think, do and want to do. Every male reproduction strategy, at the individual and the group level alike, can involve two processes: marriage in all its different forms (they are all tolerated in Benin) and fertility behaviour in marriage. By means of one and/or the other, men can minimize or maximize the number of their children.

MALE FERTILITY

Male fertility is measured by the total number of liveborn children a man has had with his different wives. In Southern Benin in 1989, a man had an average of 4 to 6 children, depending on whether one considers all males aged 20 and over or only those currently in union at time of survey. This figure is much higher than the 3.8 children per married woman recorded in 1982 (INSAE, 1982). It reflects particularly widespread polygyny, as we shall see below. This fertility level is not, however, exceptional, even if it is slightly higher than that measured in 1987 in Burundi and Mali⁶ (Mali, 1989; Burundi, 1988): the average number of children per man aged 20 to 50 is 4.6 in Southern Benin, compared to 4.0 in Burundi and 4.2 in Mali, while the polygyny rates are similar in Mali and Southern Benin (one married man out of four, vs one out of ten in Burundi).

The mean number of children grows constantly between ages 20 and 70

The mean number of children grows regularly from age 20 to age 70, or even beyond. The rise is slight at first, but accelerates between the ages

⁵ For further details, see F. Donadjè (1990).

⁶ Assuming that the national samples for Mali and Burundi can be compared to our regional sample, and after standardization with the age structure in Southern Benin.

of 30 and 50, particularly at the ages of "entry into a polygynous union". It then slows down: a married man has 9 children at age 50, and 10 or 11 at age 70 (Figure 1). One of the determinants of this rise is, of course, the time spent in union with one, or frequently several, wives. Above age 30, there is no great fertility gap between the men in union at time of survey and the ever-married: remarriage commonly follows close on the heels of divorce or widowhood.

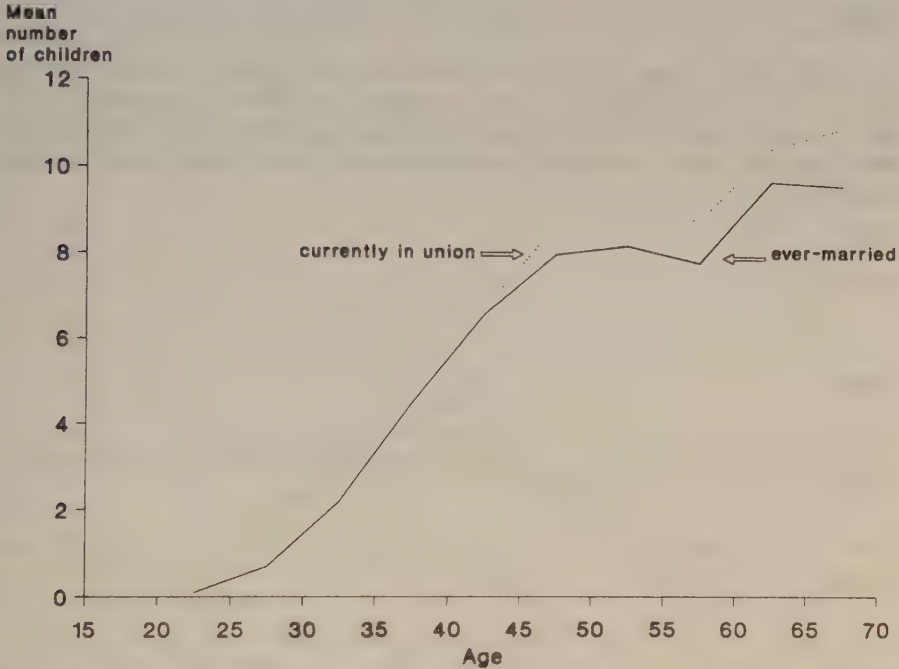


Figure 1
Mean number of children per man, by age group

Fertility levels unchanged since 1971, but the timing of fertility is earlier

The total fertility rate has varied from 10.6 children in 1971 to 10.8 in 1986, after reaching a level of 11.4 in 1976 and 1981 (Table 1). The differences between total fertility and total marital fertility⁷ are slight (\pm one child), as a result of universal marriage and the rapid pace of remarriage. Marital fertility has been stable in the region of 12 children per man (12.5 in 1976, 11.4 in 1986). But these more or less steady fertility levels may conceal variations in fertility timing.

⁷ More accurately, the fertility of men in union at time of survey. To simplify, we refer to marital fertility.

Table 1
Total fertility and total marital fertility rates

Total fertility	Period centering on				No. of men
	1971	1976	1981	1986	
General	10.6	11.4	11.4	10.8	1,629
Marital	11.7	12.5	12.1	11.4	1,492

The rates by age group and birth cohort (Figure 2) show a substantial fertility rise up to age 40 in the younger cohorts (men born in 1932-36 and 1937-41), but a reverse trend after that age. The tempo of fertility has thus changed (men now have children earlier than in the past) but not its intensity⁸.

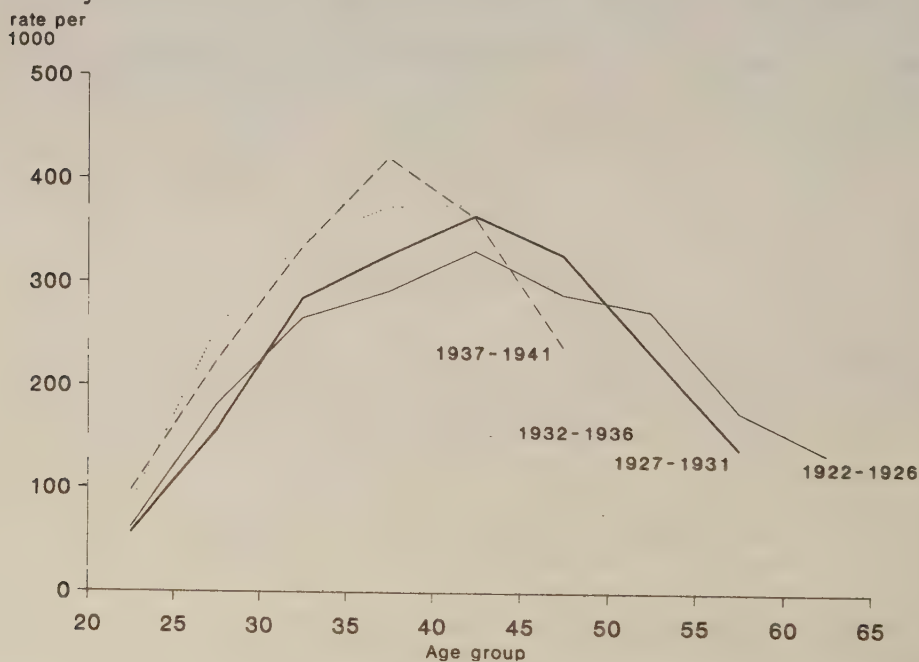


Figure 2
Fertility rates (per 1000) by age group and birth cohort (men in union)

Some fertility differentials

Fertility is a little lower in Cotonou than in the rural area. The mean number of children is lower at all ages (Figure 3), except, perhaps, for the

⁸ Assuming that birth omissions do not vary much from one cohort to another; this is supported by various data quality checks.

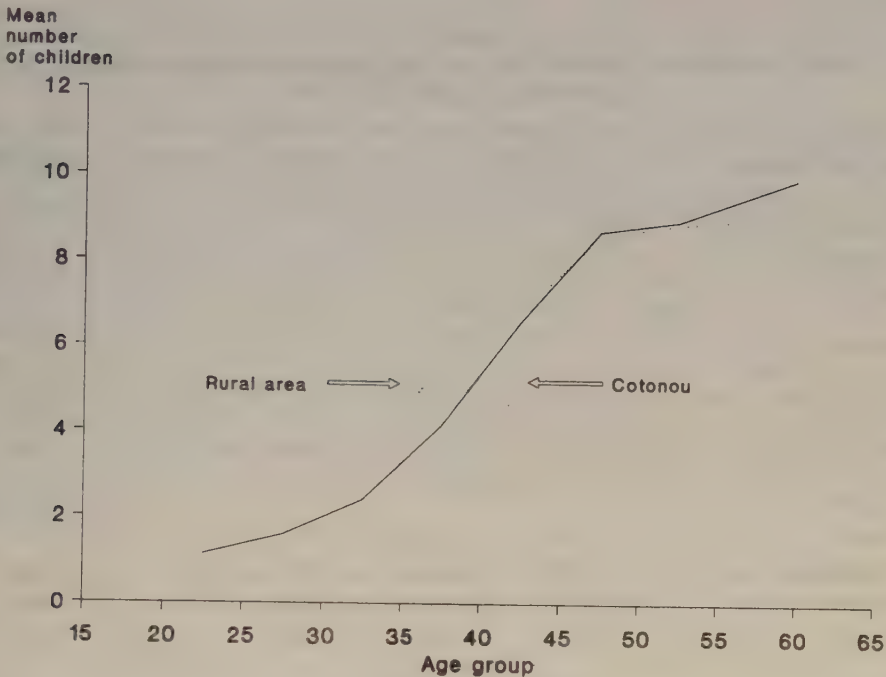


Figure 3

Mean number of children per man in Cotonou and the rural area, by age group (men in union)

oldest men, which may be due to reporting errors. Considering the younger age structure and later marriage in the capital, the difference is in the region of 1.5 children (Table 2).

There is no significant fertility differential between illiterate men and those with primary education until the age of 50, when the level becomes higher for the latter. Secondary education, on the other hand, clearly reduces fertility. Taking into account the age differences between the sub-groups, we obtained a mean number of children of 7 for illiterate men, 6.2 for those with primary education and only 4.1 for those with secondary or higher education. Cross-classification with urbanization⁹ showed that illiterate men had the same fertility behaviour in Cotonou and the rural area (7.2 and 7.4 respectively), whereas differences emerged in the other two groups: 1 and 0.6 children less in Cotonou than in the countryside for primary and secondary education respectively.

In terms of *total marital fertility* (Table 3), the lower fertility of Cotonou and the "secondary+" group is confirmed in 1986, but the difference between the "illiterate" and "primary" groups practically disappears. Between 1971 and 1986, fertility in the rural area and among the illiterate has remained at a level of almost 13 children, and there has been little

⁹ Data not shown.

Table 2
Mean numbers of children by age and socio-economic variables
(ever-married men aged 20+)

Variables	Less than 35	35-49	50 and over	Total	Numbers
<i>Residence</i>					
Cotonou	2.1	5.9	9.1	5.2	728
Rural	2.8	6.6	9.1	6.6	901
<i>Education</i>					
Illiterate	2.9	6.4	8.7	6.9	668
Primary	2.7	6.6	9.8	6.2	571
Secondary+	1.8	5.5	9.4	4.1	390
<i>Occupation</i>					
Farmer	2.8	6.2	8.2	6.3	518
Employee/executive	2.0	5.4	9.6	4.2	268
Worker/craftsman	2.4	6.3	9.6	5.4	444
Other	2.5	7.3	9.8	7.4	399
<i>Total</i>	2.4	6.3	9.1	6.0	
Numbers	503	605	521		1,629

Table 3
Total marital fertility rates by residence and educational status

Socio-demographic variables	Period centering on				Numbers
	1971	1976	1981	1986	
<i>Residence</i>					
Cotonou	11.3	11.8	10.6	9.4	684
Rural	11.8	13.0	13.4	13.0	808
<i>Education</i>					
Illiterate	11.9	12.5	12.6	12.7	584
Primary	11.4	12.8	12.8	12.0	529
Secondary+	9.8	10.3	9.3	8.1	379
<i>Total</i>	11.7	12.5	12.1	11.4	1,492

change for the "primary" group. Only the men living in Cotonou and those having received higher education display a noticeable decline, even if the levels are still 9.4 and 8.1 respectively in 1986.

Contraceptive use is very limited

There has so far been no real population policy in Benin, or any family planning programmes encouraging the use of effective, modern methods of birth control. In the 1982 (female) fertility survey, only 3% of women (national average) reported using a modern method of contraception. In 1989, the situation is apparently very similar: 6% of men reported that their wives used contraception, with a peak at 8% among those aged 30-39 (Table 4). *This markedly low proportion¹⁰* is corroborated by the lack of interest expressed for this subject: less than one out of ten respondents reported "discussing" contraceptive use with their partner, and, if asked their opinion, only one out of three would agree to her using contraception. Furthermore, there was virtually no difference between the younger men (under-30s) and their elders (aged 30 to 50). The context remains one of maximum fertility potential. This is enhanced still further by the nuptiality patterns in Benin.

Table 4

Percentage distribution of men currently in union by age and behaviour or attitudes with respect to fertility

Behaviour	Less than 30	30-39	40-49	50 and over	Total
<i>a) Knowledge of contraception</i>					
Modern	72.2	74.8	73.8	60.3	70.6
Traditional	88.6	88.7	82.4	84.2	86.0
<i>b) Method used by current wife¹</i>					
None	76.6	75.3	78.1	92.7	81.2
Only traditional	16.4	16.3	15.1	5.7	12.9
Only modern	5.4	6.8	5.9	1.1	4.8
Modern and traditional	1.6	1.6	0.9	0.5	1.1
Total	100.0	100.0	100.0	100.0	100.0
<i>c) Discusses contraception with wife</i>	9.8	10.2	9.6	2.1	7.6
<i>d) Would agree to wife using contraception</i>	41.3	40.3	31.5	12.6	30.4

¹ For polygamists, the last wife.

NUPTIALITY

Male fertility, more than female fertility, and in a context of low contraceptive prevalence, is influenced first and foremost – as regards levels

¹⁰ Particularly since 70% of men reported knowledge of at least one modern method of contraception (Table 4, a).

and differences between individuals and sub-populations – by nuptiality in its broadest sense. The timing and incidence of first marriage naturally play a role, but above all the type of male nuptiality regimes, which may be more or less stable and polygamous.

An increase in age at first marriage

Men's mean age at first marriage is relatively high in Southern Benin, in the region of 29 in Cotonou and 26 in the rural area (Table 5), or an increase of 2.5 years in both cases since 1979¹¹. The proportions single are high at ages 25-29 (55% overall, 64% at Cotonou) and not negligible at ages 30-34 (16 and 21%). But all men (at least in the older cohorts) ultimately marry by the age of 41 or 42. For the younger cohorts, particularly in the capital, this postponement may be the sign of an emerging change in the incidence of first marriage.

Table 5
Proportion single and mean age at first marriage by residence

		Cotonou	Rural	Total
<i>Percentage single</i>				
25-29	1979 Census	42.2	25.9 ¹	35.8
	1989 Survey	63.8	37.9	54.7
30-34	1979 Census	14.6	12.3 ¹	13.6
	1989 Survey	20.9	8.5	15.6
<i>Mean age (Hajnal)</i>				
	1979 Census	26.4	23.8	25.4
	1989 Survey	28.9	26.2	28.0
<i>Reported mean age² (1989)</i>		26.4	24.8	25.5

¹ The 1979 census data for "rural" and "total" concern the rural part and whole of the Atlantic *département* to which Cotonou belongs.
² Men aged 35-44 at time of survey.

Little change in the types of union

In the cohorts whose members have practically all entered a first union – men aged more than 35 (Table 6) – *virtually no change is observed over time in the types of union contracted*. In the older cohorts (men aged over 50) and the younger ones (35-39) alike, customary marriage (family alliance, with dowry) is clearly the most common (53-56%), followed by consensual union (about 25%). Civil marriage has gained no ground (one out of six marriages). *The pattern is perfectly stable over time*. There are naturally differences between the capital and the rural world: civil marriage

¹¹ Assuming that our rural sample is representative of the rural population of the Atlantic *département*.

Table 6
Percentage distribution of ever-married men aged 35 and over
by type of first union and age group

Age group	Civil ¹	Religious	Customary	Consensual	Total	Numbers
35-39	15.1	3.9	54.8	26.2	100.0	259
40-49	17.8	1.7	52.9	27.6	100.0	346
50+	15.2	4.8	56.2	23.8	100.0	521
All ages	16.0	3.5	55.0	25.5	100.0	1,126

¹ Including combined marriages (civil and religious).

is more frequent in Cotonou (24% at ages 35-39) than in the latter (6%), but customary marriage represents the majority in both cases (50% and 60% respectively). Moreover, customary marriage and consensual union have apparently both become a little more popular in the capital than in the past¹².

From stable monogamy to unstable polygyny

To study with as much accuracy as possible the impact of nuptiality on male fertility, the situation in Benin, characterized by high marital mobility and a mixture of monogamy and polygyny, first needed to be clarified. We therefore defined four types of *marriage profile*, which sum up men's marital histories in terms of stability or instability, monogamy or polygyny, as follows:

— *stable monogamy*: the individual had contracted only one union at time of survey;

— *unstable monogamy*: the individual had had several wives, but successively;

— *stable polygyny*: the individual had, after a first marriage, contracted at least a second one, without dissolving the first, and had never reverted to monogamy; he may have gone from bigamy to "trigamy or more" or vice versa;

— *unstable polygyny*: the individual had gone from monogamy to polygyny then sometimes reverted to monogamy when a wife died or divorced.

Table 7 displays the age distribution of these marriage profiles among all ever-married respondents.

Stable monogamy is by far the most common profile among the younger men, who have been less exposed to the risk of dissolved union. Then *as they grow older, they rapidly enter into polygyny and instability*. At ages 40-44 and 55-64, there are only 53% and 40% respectively of stable

¹² The figures are not shown here. This trend is perhaps due to the higher cost of a civil wedding.

Table 7
Percentage distribution of ever-married men by age and marriage profile
at time of survey

Age group	Stable monogamy	Unstable monogamy	Stable polygyny	Unstable polygyny	Total	Numbers
< 30	83.5	4.7	8.8	3.0	100.0	193
30-34	74.8	5.8	13.9	5.5	100.0	310
35-39	64.9	7.3	17.8	10.0	100.0	259
40-44	52.7	7.6	24.5	15.2	100.0	184
45-54	36.1	10.2	25.9	27.8	100.0	274
55-64	39.6	9.7	22.3	28.4	100.0	207
65+	30.7	12.9	17.3	39.1	100.0	202
All ages	55.3	8.2	18.7	17.8	100.0	1,629

monogamists, while stable polygyny (25%) and unstable polygyny (15%) already account for 40% of the 40-44 year olds. This proportion rises to 56% beyond age 65. More marriages dissolved by divorce or wife's death means that unstable polygyny gradually gains ground over stable polygyny, and is the most common profile among the older men.

Some differences were observed between Cotonou and the rural area¹³, in particular among the under-40s: marriages are more stable in the capital and polygyny less widespread. But the patterns merge beyond age 55. Divorce, polygyny, marital mobility are the key words in describing male nuptiality in Southern Benin.

Divorce is common and occurs early

More than 45% of unions contracted by men aged 50+ had been dissolved within the first 35 years (Table 8). The proportion grows rapidly with marriage duration: 10% at 5 years, 18% at 10 years, 33% at 20 years and 43% at 30 years.

*Many more were dissolved by divorce than by widowhood*¹⁴. After less than 15 years of union, there were three divorces for every death, after 20 years, two for one. But despite the frequency of divorce (almost 30% of marriages are dissolved this way), *the role of female mortality is by no means negligible*, since it accounts for 17% of all dissolved unions.

Divorce is most frequent among men who marry young (Table 9). After 10 years in union, 16-17% of marriages contracted before the age of 25 had ended in divorce, compared to 11-12% at ages 25-29. *There is no clear indication of a change over the years*: after 10 years of marriage, men aged 35-49 had divorced practically as much as those aged over 50.

¹³ Data not shown.

¹⁴ Particularly since, from the angle of male nuptiality, the spouse is by far the younger partner.

Table 8
Proportion of marriages dissolved by divorce and widowhood, by duration
(men aged 50 and above at time of survey)

Exact duration x	Proportion dissolved by:		
	Divorce	Widowhood	Total
5	7.1	2.3	9.4
10	14.5	3.9	18.4
15	19.8	7.9	27.7
20	22.7	10.0	32.7
25	24.5	12.9	37.4
30	27.2	16.0	43.2
35	28.2	17.1	45.3

Table 9
Proportion of marriages dissolved by divorce after ten years, by age at
marriage and at time of survey

Age at marriage	Age at survey			
	< 35	35-49	50+	Total
< 25	13.4 ¹	16.1	16.9	15.1
25-29	—	10.6	11.8	9.4
30+	—	10.4 ¹	15.1	13.4
Total	—	13.8	14.5	12.8

¹ Underestimated insofar as some men in this age group had not been married for ten years.

Divorce occurs relatively early. Of divorces reported¹⁵ by men aged 50+, 9% took place during the first two years of union, 21% in the first four years, 45% in the first seven and 70% in the first thirteen; however, 12% occurred after 25 years.

No substantial cohort changes in polygyny

Table 10 displays the probabilities of entry into polygynous union before the age of 25, 30, 35... and 60 for four broad groups of cohorts (current age groups) and three groups of age at first marriage (early: before age 25; average: 25 to 29; and late: age 30 or above).

Globally (last column, all cohorts and ages combined), it is between ages 25 and 30 and ages 30 and 35 that most men enter polygyny, even if this sometimes occurs at age 45 or slightly later.

¹⁵ Data not shown.

Table 10
Probabilities of entry into polygynous union by age x in four broad groups of cohorts and three groups of age at marriage (ever-married men aged 25 and over)

Age x	25-34			35-44			45-54			55 and over			All ages			Total
	< 25	25-29	30+	< 25	25-29	30+	< 25	25-29	30+	< 25	25-29	30+	< 25	25-29	30+	
25	0.11	-	-	0.14	-	-	0.12	-	-	0.12	-	-	0.12	-	-	0.05
30	-	-	-	0.30	0.10	-	0.30	0.21	-	0.29	0.10	-	0.27	0.10	-	0.16
35	-	-	-	0.40	0.24	-	0.50	0.34	0.13	0.38	0.31	0.06	0.36	0.22	0.06	0.25
40	-	-	-	-	-	-	0.57	0.48	0.27	0.46	0.41	0.17	0.39	0.28	0.16	0.30
45	-	-	-	-	-	-	0.59	0.52	0.34	0.53	0.44	0.26	0.40	0.30	0.21	0.33
50	-	-	-	-	-	-	-	-	-	0.56	0.47	0.33	0.41	0.31	0.26	0.34
55	-	-	-	-	-	-	-	-	-	0.57	0.49	0.38	0.41	0.32	0.28	0.35
60	-	-	-	-	-	-	-	-	-	0.60	0.53	0.49	0.42	0.33	0.33	0.37
Num- bers	272	171	34	205	171	67	122	90	62	96	145	168	695	577	331	1,603

Age at marriage has a clear impact on the timing and, to a lesser extent, the incidence of the phenomenon: in all cohorts, the younger the men married, the more rapidly they became polygynists. The differences are particularly marked up to age 30 or 35, then diminish. Differences in the total frequency of polygyny are, more surprisingly, relatively small. For men aged 55 and over, in other words virtually at the end of their marital life course, the probabilities of entering polygyny by the age of 60 are 0.60, 0.53 and 0.49 respectively depending on whether they married early, average or late. In other words, men who married later then made up in part for lost time (this point will be discussed below).

There is no clear-cut change over time. The older cohorts (men aged 55 and over) have been somewhat less polygynous than those slightly younger (45-54), whatever their age at marriage¹⁶. The differences are greatest between ages 30 and 40, suggesting an increase in polygyny ten or twenty years ago. On the other hand, the younger cohorts (aged 35-44) are slightly less polygynous than their immediate elders (aged 45-54); their polygyny level is similar to that of the older cohorts (55 and over). *There has consequently been no behavioural "revolution" in Benin: polygyny remains extremely widespread.*

Age at entry into a polygynous union

The men who are tempted by polygyny waste little time in becoming bigamists: for all ages at marriage combined, 9 years on average separate the first marriage from the second (Table 11), but 40% and 60% of second marriages took place after 5 and 8 years respectively¹⁷. One man out of seven became polygamous after less than two years of marriage.

The higher the age at first marriage, the shorter the gap between first and second marriage: men who first married very young waited almost 10 years to take a second wife, whereas those aged 25-29 waited barely more than 8 years. About 30% of early first marriages (before the age of 25) were followed by a second in the first five years, compared to 43% in the case of first marriages above age 25. In other words, *some of the lost time is made up*. The data are not shown here, but this was noted in both rural and urban populations and at all literacy levels.

However, *entry into polygyny is spread over time*. Although quite a number of men rapidly became bigamists, another 20% only did so after 15 years in first union (Table 11), when they were over 40 or 45¹⁸. *Men enter polygyny at any age:* 16% (of men aged 40 and over) did so after the age of 45, 10% after age 50 and 6% even after age 55. In the vast majority of cases (70%), they married women aged less than 25, 80% of

¹⁶ The differences seem sufficiently substantial and regular to exclude random fluctuations or collection problems.

¹⁷ Only second unions contracted polygamously.

¹⁸ Hence the difficulty of studying time trends in polygyny.

Table 11
Duration between first and second marriage by age at the first,
men aged 40 and over who were (or had been) polygamists

Duration (years)	Age at marriage			
	< 25	25-29	30+	Total
0-1	10.9	14.4	16.7	13.6
2-4	20.1	30.7	25.9	25.3
5-7	20.1	15.7	19.4	18.4
8-13	28.2	21.6	17.6	23.2
14-19	10.9	9.8	9.3	10.1
20+	9.8	7.8	11.1	9.4
Total	100.0	100.0	100.0	100.0
Average duration	9.7	8.3	8.7	9.0
Median duration	6.9	5.0	4.7	5.7
Mean age:				
at first marriage	21.3	26.4	35.1	27.0
at second marriage	31.0	34.7	43.8	36.0
Numbers	174	153	108	435

whom were never-married. Polygyny being widespread, this strategy maximizes the male fertility potential.

Polygyny concerns all social strata

Table 12 shows the proportions of polygynists (among married men) by age, current residence, residence since childhood¹⁹, educational status and some occupational groups.

Up to age 35, and even 45, relatively clear-cut differences emerge: polygyny is more common in the countryside than in Cotonou; the most educated men and those engaged in employee/executive work are much less frequently polygynists than illiterate men or farmers. *But after age 45 – when much of the period of exposure to risk has already gone by – all these differences diminish:* polygyny is only slightly less popular in Cotonou than elsewhere, and having lived in the capital since childhood scarcely changes the situation; primary education, and perhaps also secondary (but the small numbers call for caution), go hand in hand with high polygyny at ages 45-54; occupation is no longer a discriminating factor (but, there again, there were few employees/executives in the sample).

When the data were cross-classified by education and residence since childhood (Table 13), there was no significant change. Only life-long in-

¹⁹ To control for migration; here, however, the differences with current residence are relatively slight.

Table 12

Percentage of polygynists (among married men) by age group and current residence, residence since childhood, educational status and occupation

Variables	Age at survey					Numbers
	< 35	35-44	45-54	55+	Total	
<i>Current residence</i>						
Cotonou	9.1	17.6	36.2	28.6	19.0	684
Rural	19.8	29.4	36.3	38.3	30.4	808
<i>Residence since childhood</i>						
Always Cotonou	9.5	18.1	38.0	26.4	19.3	576
Always rural	20.7	29.2	34.8	38.5	30.5	775
Other	6.0	(19.0)	—	—	20.6	141
<i>Education</i>						
Illiterate	20.8	27.6	30.6	36.8	30.1	584
Primary	15.8	29.2	42.4	35.5	20.8	529
Secondary+	8.7	10.7	(40.0)	—	13.7	379
<i>Occupation</i>						
Farmer	17.9	29.4	26.7	36.4	28.3	456
Employee/executive	5.8	14.7	(36.2)	—	14.4	263
Worker/craftsman/tradesman	16.4	20.6	42.3	(39.0)	24.4	418
Other	15.9	33.3	41.4	32.9	30.1	355
<i>Total</i>	14.0	23.7	36.3	35.0	25.2	1,492
Numbers	485	422	251	334	1,492	—
—: less than 30 cases (): 30 to 50 cases						

Table 13

Percentage of polygynists among married men aged 40 and over by educational status and residence since childhood

Educational status	Always urban	Always rural	Total	Numbers	Mean age
Illiterate	32.8	34.7	33.6	369	56
Primary	35.1	41.2	39.2	225	54
Secondary+	20.5	(30.4)	24.8	101	49
Total	30.0	36.2	34.0	695	54
Numbers	247	448	695		
Mean age	52	56	54		

habitants of Cotonou having received secondary education were noticeably less polygynous²⁰. All other differences were only minor ones: whatever the environment, polygyny was somewhat more widespread among the primary schooling group than among the illiterate, and at both literacy levels, it was a little less common in Cotonou than in the countryside.

²⁰ But they were also noticeably younger than the illiterate group.

What conclusions can be drawn from these data? One thing is sure: the older cohorts have, and have had, relatively homogeneous behaviour with respect to polygyny, which is very widespread. But what about the younger cohorts? Are there any perceptible signs of change? It is difficult to forecast their behaviour with accuracy, since the timing of polygyny extends over a long period and is in addition dependent on age at first marriage. The probabilities of entry into polygyny (Table 10) and the already high frequencies at ages 35-44 (Table 12) suggest that *for the time being, and in spite of the economic crisis, there are no major changes under way. Polygyny has been in the past, and still is today, an important feature of social organization in Benin, and it obviously has an impact on male fertility.*

RELATIONS BETWEEN NUPTIALITY AND FERTILITY

Overall, male fertility values are stable over time, at TFR levels of 11 to 12 children per married man. Variations are observed according to marital history, but when marriage duration is controlled for by computing numbers of children per woman-year, the patterns become relatively homogeneous. This will be confirmed by the study of *female* fertility by type of union (monogamous or polygynous) and wife order, in the case of bigamous and trigamous unions.

6 to 14 children depending on marriage profile

Table 14 shows the mean number of children per currently or ever married man, by age and marriage profile (which, as we have seen, combines type and stability of union).

From monogamous to polygynous union, the mean number of children practically doubles in each age group. Completed fertility is 5 to 6 children for the men who have only had one wife at a time. Stability of union has little impact, confirming that remarriage (after divorce or widowhood) must be relatively rapid²¹. Polygynists, on the other hand, have 12 to 14 children, depending on how stable their unions have been. Stability plays a greater role in this case: "stable polygynists" generally have two children more than "unstable polygynists". As would seem logical, the stable polygynists (20% of married men) have about twice as many children as the stable monogamists. When we add the 18% of unstable polygynists, who have almost as many children, we can appreciate the impact of marital strategies on male fertility in a country like Benin²².

²¹ A point we are in the process of analysing.

²² This is all the greater as, unlike other Central African countries, Benin has virtually no "sterility polygyny", the proportions of infertile or sub-fecund women being low.

Table 14
Mean number of children per man, by current age
and marriage

Age group	Stable monogamy	Unstable monogamy	Stable polygyny	Unstable polygyny	Total	Numbers
< 35	2.0	—	4.5	(4.1)	2.4	503
35-44	4.2	(4.4)	8.9	7.2	5.5	443
45-54	5.8	(4.4)	12.1	9.5	8.3	274
≥ 55	5.4	5.5	14.1	11.8	9.3	409
All ages	3.6	4.4	10.2	9.7	6.0	1,629
Numbers	901	134	304	290	1,629	
—: less than 30 cases (): 30 to 50 cases						

The same relationship between marital profile and fertility is observed in the urban and rural populations. The number of children is slightly lower in Cotonou for all age groups and situations (data not shown).

Few differences in the individual male fertility index

In view of the range of respondents' ages and the extent of polygyny and of marital instability, it was necessary to use an individual male fertility index to control for time spent in union²³. We thus calculated the *number of children per woman-year*, by dividing the total number of live-born children a man had had by the sum total of the years spent in union with each wife.

Calculated for those men who had spent at least five years in union and had at least one child²⁴, the average value of this indicator was 0.30, or one child every three years. It varied with age, falling from 0.35 for under-45s to 0.21 for over-55s (Table 15). This result is logical, since older men have wives who, on average, are also older, which increases the birth intervals. The results are presented according to a number of socio-economic variables: current residence, residence since childhood, educational status, occupation and contraceptive use.

When duration in union is thus taken into account, *the behaviour of the different sub-groups is relatively homogeneous*. There is virtually no difference between urban and rural residents, nor by residence since childhood (except, perhaps, a slight difference after age 55). Similarly, there are few variations by educational status or occupation, and those which do emerge for men aged 45 and over are unexpected: fertility indices are slightly lower for the illiterate and for farmers. Current contraceptive use has no impact.

²³ Since it was not possible to construct a DRAT (duration ratio) type of individual index relating observed fertility to a standard.

²⁴ To eliminate very young husbands, the (rare) cases of sterility and unions dissolved early.

Table 15
Individual male fertility index (number of children per woman-year)¹
according to age and socio-economic variables

Variable	Age group					Numbers
	< 35	35-44	45-54	55+	Total	
<i>Current residence</i>						
Cotonou	0.36	0.34	0.29	0.22	0.31	579
Rural	0.35	0.35	0.29	0.20	0.29	800
<i>Residence since childhood</i>						
Always urban	0.35	0.34	0.30	0.22	0.31	487
Always rural	0.35	0.35	0.29	0.20	0.29	770
Other	(0.38)	(0.41)	(0.27)	(0.22)	0.31	122
<i>Educational status</i>						
Illiterate	0.35	0.34	0.28	0.20	0.27	616
Primary	0.36	0.35	0.30	0.22	0.31	496
Secondary+	0.35	0.35	0.30	(0.23)	0.33	267
<i>Occupation</i>						
Farmer	0.34	0.36	0.28	0.21	0.29	459
Employee/executive	0.37	0.33	(0.30)	—	0.34	202
Worker/craftsman/tradesman	0.35	0.34	0.30	0.22	0.32	366
Other	0.35	0.37	0.28	0.20	0.27	352
<i>Contraceptive use</i>						
None	0.34	0.33	0.28	0.21	0.29	1,151
Modern and traditional	(0.36)	(0.35)	(0.33)	(0.24)	0.35	75
Traditional only	0.38	0.35	0.27	0.20	0.33	153
<i>Total</i>	0.35	0.35	0.29	0.21	0.30	1,379
Numbers	310	412	266	391	1,379	

—: less than 30 cases (): 30 to 50 cases
¹ Calculated for ever-married men aged 20 and over having lived in union for at least five years and had at least one child.

Table 16
Individual male fertility index (men aged 30 to 49) by educational status
and current residence

Educational status	Cotonou	Rural	Total
Illiterate	0.33	0.33	0.33
Primary	0.34	0.35	0.35
Secondary+	0.34	0.35	0.34
Total	0.34	0.34	0.34

When the data are cross-classified by educational status and current residence (Table 16), *there are no significant differences*: educated urban

residents have the same number of children per woman-year as the other groups.

Marriage profiles seem to have a little more impact (Table 17). Monogamists, whether stable or not, have a higher individual index than polygynists at all ages. However, the differences are generally slight.

Table 17
Individual male fertility index¹ by age and marriage profile

Age group	Stable monogamy	Unstable monogamy	Stable polygyny	Unstable polygyny	Total	Numbers
20-29	0.34	—	(0.33)	—	0.35	93
30-39	0.37	(0.38)	0.34	(0.33)	0.36	452
40-49	0.33	(0.33)	0.31	0.28	0.31	335
50-59	0.25	0.29	0.22	0.26	0.25	207
60+	0.20	0.21	0.19	0.20	0.20	292
All ages	0.32	0.31	0.28	0.26	0.30	1,379

¹ Calculated for ever-married men having lived in union for at least five years and had at least one child.

—: less than 30 cases (): 30 to 50 cases

Thus, when type and duration of union are taken into account, male fertility values remain very homogeneous in Southern Benin, and no doubt throughout the country. How about female fertility?

Female fertility is as high in monogamous as in polygynous unions

We shall attempt to answer as accurately as possible two of the classic questions concerning African fertility and nuptiality. First, does being married to a polygynist result in lower individual female fertility? Second, in polygynous unions, are there fertility differences between wives according to their order? A male survey offers a satisfactory approach to these questions, since men are interviewed about each of their unions and the children they have had with each wife. We considered the responses relative to women in stable unions, who had married before the age of 30 and whose husbands were aged 40 and over²⁵. We broke them down as much as we could, into six categories: women married to monogamists, first and second wives of bigamists, and first, second and third wives of polygamists with three or more wives ("trigamists" for short). For each of these sub-groups, we calculated two indicators of female fertility (total number of children, number

²⁵ Since it was necessary to control a number of "disturbing factors": dissolution of union (we kept only stable unions, monogamous or polygynous), men's age (we kept only men over age 40, by which time many were already polygamous) and duration of union (to have sufficiently long durations, we kept only men who had married women aged less than 30; this also eliminated the problem of age-specific fecundability variations).

of children per woman-year), average duration of union, current age of husband and wife, age of both partners at marriage and their age gap (Table 18).

Table 18
Characteristics and fertility of wives of stable monogamists, bigamists and trigamists (men aged 40 and over, women married before the age of 30)

Characteristics	Stable monogamists	Stable bigamists		Polygamists with 3 or more wives		
		1st wife	2nd wife	1st wife	2nd wife	3rd wife
Number of children per year of union	0.22	0.22	0.29	0.23	0.25	0.23
Total number of children	5.4	5.6	4.3	5.8	5.0	3.0
Average duration of union	23.1	24.9	15.0	25.1	19.7	13.0
Current age of women	44.6	44.2	34.9	43.5	40.0	31.6
Current age of men	53.1	51.1	51.1	52.2	52.2	52.2
Mean age at marriage						
Women	20.0	19.4	19.9	18.4	20.3	20.0
Men	28.5	26.3	36.1	27.1	32.5	40.6
Age gap between partners	8.5	6.9	16.2	8.7	12.2	20.6
Number of women	328	79	79	38	38	38

Large age gaps between partners and between wives

There is little age difference between wives of monogamists and first wives of bigamists or trigamists: they were all aged 43 to 45 on average, with marriage durations of 23 to 25 years. Thus, *all men start off their marital history in much the same way*, apart from the fact that those who remain monogamists marry 1 to 2 years later than the others. Bigamists wait about 9 years before taking a second wife, who is practically as young as the first one was at marriage. "Trigamists" move faster: compared to other men, they enter first union at roughly the same age, but with a slightly younger woman; they then rapidly take a second wife (after five years on average), again with a very young woman (20 years old), and eight years later choose a third wife, just as young as the second. We see that *whatever the type and order of the union, the men of Southern Benin (aged 40 and over in stable union) had chosen to marry young and very fertile women*²⁶ – a strategy which maximizes fertility.

In this sub-sample of men, the result is naturally *very broad age gaps between partners*: 7 to 9 years for first unions, 12 years for second unions

²⁶ And, as we have said, almost all never-married. But we should bear in mind that, in this section, we have eliminated the 15% of women who entered polygamous union after the age of 30, and who were often divorced or widowed. Also, these data do not faithfully reflect the age gaps between partners, since we selected men who had only married under-30s.

of "trigamists" and 16 years for those of bigamists, and 21 years for third unions.

Female fertility differentials are slight

Among first wives, who are very similar in terms of age at and duration of union, there are no clear fertility differences by type of union (Table 18). The wives of monogamists and the first wives of polygynists have virtually the same number of children (5.4 compared to 5.6 and 5.8).

For polygynists' wives of higher orders, the comparison is more difficult. Second wives are apparently slightly more fertile than first wives: in bigamous unions, they have 4.3 children after 15 years, in "trigamous" ones, 5 children after 19 years. Third wives have an average of 3 children after 13 years.

The duration-specific fertility rates of monogamists and first and second wives of bigamists confirm that the differentials are slight (Table 19).

In Southern Benin, men's behaviour with respect to fertility therefore seems to be relatively homogeneous or "egalitarian" vis-à-vis their wives, whether the union is monogamous or polygynous, whether the wife is the first or the second one. At least, this is true for stable unions, which may perhaps be specific in certain aspects.

Table 19
Duration-specific fertility rates (per 1,000) by type of union¹

Duration	Wives of monogamists	Wives of bigamists	
		1st wife	2nd wife
0-4	325	308	314
5-9	318	305	308
10-14	263	210	203
15-19	129	162	— ²
20-24	63	73	—
Cumulated fertility			
after 15 years union	4.4	4.1	4.1
after 25 years union	5.5	5.3	—

¹ Calculated for women who had married before the age of 30 and been in union for at least 10 years, and whose husbands were aged 40 and over.

² These women were too young for rates to be calculated beyond 15 years.

MEN'S OPINIONS AND BEHAVIOUR

We present here²⁷ the opinions of ever-married men on four questions, two concerning nuptiality (sexual relations outside marriage and number of wives wanted) and two on fertility (number of children wanted and subjects discussed with wife). The results are presented by age, residence and educational status.

Sexual relations outside marriage

Most respondents (53%) answered yes to the question "*Can a married man have sexual relations with women other than his wife?*" (Table 20). Only 6% had no opinion, and those most favourable were the younger, more educated urban residents. In other words, the factors of modernity have a positive impact on men's views on sexual freedom.

Table 20
Percentage distribution of ever-married men according to their opinion on sexual relations outside marriage

Characteristics	For	Against	Undecided	Total	Numbers
<i>Age</i>					
< 30	55	38	7	100	193
30-49	56	38	6	100	915
≥ 50	45	49	6	100	521
<i>Residence</i>					
Cotonou	57	36	7	100	728
Rural	49	46	5	100	901
<i>Educational status</i>					
Illiterate	48	45	7	100	668
Primary	52	42	6	100	571
Secondary+	61	34	5	100	390
<i>Total</i>	53	41	6	100	1,629
<div>Reasons for:</div> <div> 1) wanting a change (55%) 2) lactation (30%) </div> <div>Reasons against:</div> <div> 1) morally forbidden (35%) 2) faithful to wife (25%) 3) afraid of disease (20%) </div>					

The principal reasons given by those in favour of sexual freedom were wanting a change and abstinence during lactation. Those against felt it was

²⁷ Due to space limitations. In all, the questionnaire included fifty questions on opinions, aspirations and behaviour, grouped around six themes: marriage, fertility, aspirations concerning children, birth intervals, knowledge and use of contraception. The processing of these data is under way.

morally wrong (35%), wanted to be faithful to their wife (25%) or were afraid of catching a disease (20%). *The present and future context thus seems, overall, favourable to men's freedom of action.*

Number of wives wanted

When asked "*How many wives would you personally like to have at a time?*", only 58% of the men currently married to only one woman reported wanting to stay that way, while 23% wanted to have two and 3% more than that. 16% (one out of six) were undecided or said "it all depends" (Table 21). There were considerable variations by residence and schooling: monogamy – that is, the status quo – was more popular in Cotonou (71%) than in the countryside (45%), and among the most educated (81%) than among the illiterate (42%).

Table 21
Percentage distribution of men married to one woman
according to the number of wives they would like to have

Characteristics	Only one wife	Two wives	Three wives or more	Undecided, it all depends	Total
<i>Residence</i>					
Cotonou	71	15	1	13	100
Rural	45	30	6	19	100
<i>Age</i>					
< 30	52	24	2	22	100
30-49	59	25	3	13	100
≥ 50	60	17	5	18	100
<i>Educational status</i>					
Illiterate	42	33	5	20	100
Primary	57	22	4	17	100
Secondary+	81	10	1	8	100
<i>Total</i>	58	23	3	16	100
Numbers	653	250	38	175	1,116

On the other hand, only 10% of polygynists would like to revert to monogamy²⁸. 11% of bigamists would like to be monogamists, but 8% would prefer to have an extra wife or two. As for "trigamists", 10% would like to have only one wife and 10% would be happy with only two.

Although having an opinion is not equal to putting it into practice, *in a vast majority of the population, polygyny is still well considered and the "polygyny potential" is substantial.*

²⁸ Data not shown in Table 21.

Number of children wanted

This is a difficult question to answer (the respondent may never have given it any thought) and it is also difficult to interpret. For all responses combined, there were about 9% of "don't know", and 55% of "that's in God's hands", in other words, there were no clearly defined personal plans (Table 22). More than a third of the younger men and those with secondary schooling were in this case.

Table 22
Distribution of ever-married men by number of children wanted
and percentage of imprecise answers

Characteristics	Mean number of children ¹	Mean number of children wanted ¹	Percentage of responses	
			"in God's hands"	"don't know"
<i>Ages</i>				
< 30	1.9	5.8	39	10
30-39	3.3	6.0	47	8
40-49	6.8	8.0	59	8
≥ 50	8.9	8.6	68	11
<i>Residence</i>				
Cotonou	4.0	6.5	51	10
Rural	5.6	7.8	59	8
<i>Educational status</i>				
Illiterate	6.4	8.4	67	9
Primary	5.3	7.3	57	10
Secondary+	3.4	5.4	34	8
<i>Total</i>	4.9	7.0	55	9

¹ Calculated for those who gave a precise response for number of children wanted (577 men out of 1,629).

Those who did give a precise answer (36%) most frequently wanted a very large family (7 children on average). The number varies with respondent's socio-demographic characteristics. Current residence has some impact (a difference of 1.3 children), but, as would be expected, it is education which produces the greatest differential (3 children). As a general rule, men wanted two children more than they already had.

Subjects discussed with wife

Few men reported discussing contraception (8% of couples), but more said they talked about the number of children they would like (27%). On this latter subject, the younger respondents were more loquacious (35% of

under-40s) than their elders (12% above age 50), and in Cotonou there was more dialogue than in the country (37% and 19%) (Table 23). But the subject is still not commonly discussed, even among men who have been to secondary school or college (only one out of two). In general, it is left unspoken.

Table 23

Percentage distribution of ever-married men depending on whether or not they discuss the number of children wanted with their (present) wife

Characteristics	Discuss it with their wife		
	Yes	No	Total
<i>Age</i>			
< 30	34	66	100
30-39	37	63	100
40-49	27	73	100
≥ 50	12	88	100
<i>Residence</i>			
Cotonou	37	63	100
Rural	19	81	100
<i>Educational status</i>			
Illiterate	12	88	100
Primary	25	75	100
Secondary+	54	46	100
<i>Total</i>	27	73	100

CONCLUSION

The results of the 1982 Fertility Survey showed that in Benin, like many other African countries, fertility was high, contraceptive prevalence very low, female first marriage rates were also high and women married early, and polygyny was widespread. The 1989 survey on the reproductive and marital histories, opinions and behaviour of 1,600 married men in Southern Benin confirm these results. There were apparently no real changes during the 1980s, the only exception being in age at first marriage.

In addition to purely demographic data, surveys of this kind – which are regrettably all too rare –, by providing information on the practices and behaviour of *men*, give new insight into reproductive strategies, in which this sex plays a key role. Out of the mass of information collected, we have extracted here some results concerning male nuptiality and fertility levels, the links between marital regime and number of children, and opinions on a few related questions. Globally, the following patterns emerged.

With regard to *nuptiality*, some change is observed in age at first marriage (perhaps due to the economic crisis?) but very little in other aspects. The popularity of the different types of union contracted (civil or customary marriage, consensual union) has not varied, polygyny will probably be just as widespread among younger men as it is among their predecessors, divorce remains frequent and occurs fairly rapidly. Sexual freedom is viewed favourably by a majority of men.

With regard to *male fertility*, marital TFRs ranged from 9.5 to 13 children per man in 1986, depending on place of residence. Contraceptive use was rare (in the region of 5%) and polygyny was present in all social strata. Fertility and polygyny levels were slightly lower in the capital than in the rural area, and for literate than illiterate. In 1989, the number of children wanted was 7 on average.

Concerning the *relationship between male nuptiality and fertility*, the type of marriage regime clearly has considerable impact on the number of children, which doubles for "always polygynists" compared to "always monogamists". Stability of union has little effect, since men who divorce or become widowers usually remarry rapidly. Perhaps more surprising is the lack of fertility differentials between wives of monogamists and polygynists, and between the different wives of polygynists. We are apparently far from the description of polygyny as a source of conflict and sexual inequalities... unless "competition" between wives reduces these and leads to a certain homogeneity.

In Southern Benin, and perhaps throughout the country, men's reproductive strategies, to which their marital regimes greatly contribute, virtually maximize fertility. Some very slight changes are emerging, but they so far concern only the small group of more educated urban residents.

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APPENDIX

Brief presentation of the 1989 Survey

To investigate reproductive strategies in Southern Benin, an in-depth survey of male fertility and nuptiality behaviour was conducted in 1989 on 2,400 men aged 20 and over. It was funded by the WHO and CODESRIA and carried out and analysed by F. Donadjè, with the scientific collaboration of D. Tabutin.

Some characteristics of the male nuptiality and fertility survey
in Southern Benin, 1989

Characteristics	Cotonou	Rural	Total
Number of households interviewed	1,198	1,392	2,590
Number of men interviewed			
Ever-married	728	901	1 629
Never-married	535	213	748
Number of unions	1,150	1,809	2,959
Number of births			
In union	3,816	5,923	9,739
Outside of union	115	103	218
Age structure of respondents			
20-29	552	279	831
30-39	384	279	663
40-49	149	203	352
50-59	94	126	220
60+	84	227	311
Total	1,263	1,114	2,377

Two random samples were drawn, one in the capital, Cotonou (1,198 households), the other in a rural area a hundred kilometers away (1,392 households). In both cases, the majority of respondents (84%) belonged to the Fon, a patrilineal and patrilocal ethnic group.

Three questionnaires were used: a household schedule, containing questions on the classic socio-economic and residential variables; one for each ever-married man in the household aged 20 and over; and one for

the never-married males. The 27-page questionnaire for ever-married men comprised six different sections:

- precise social, economic and demographic data relative to the respondent;
- complete history of each of his unions;
- detailed "reproductive history" with each wife;
- extra-marital fertility history, a complement to the previous section;
- behaviour and opinions relative to fertility, marriage, contraception...
- family antecedents and relationship with his background.

A total of 1,629 ever-married and 748 never-married men were interviewed. Almost 3,000 unions and 10,000 births were reported. The survey was consequently a difficult one, but which yielded a wealth of information.

ABSTRACT

In Benin, as elsewhere in Sub-Saharan Africa, the male is a pivot in the human reproductive system which is largely imbricated in family networks. This research is based on a specific survey conducted among a random sample of 2,400 men aged 20 and above in the city of Cotonou and the rural area surrounding the economic capital.

The analysis of the matrimonial and fertility history of men has enabled, for the first time, to build a detailed typology of male unions which takes into account the type of union (monogamy or polygamy) as well as conjugal mobility (stability or instability). We have also built an individual index of male fertility which takes into account the contribution to fertility of each of the man's spouses in the constitution of his descent (number of children by women-year). We also give some results concerning opinions and behaviours among men.

From the survey conducted in South-Benin, it appears that practically all men are married, nowadays at slightly later ages than before, and practise polygamy in nearly all social groups. Male fertility has barely changed in the past 15 years, except that men among the younger generation have children sooner after marriage and relatively less children in town than in the rural zones. Moreover, female fertility is as high among monogamous unions as among polygamous ones. Apart from young urban males with a high level of education, opinions and behaviours concerning fertility and nuptiality remain favourable to a maximalist reproduction strategy.

Parenthood in Sub-Saharan Africa: Child Fostering and its Relationship with Fertility

Uche C. ISIUGO-ABANIHE*

The primary familial responsibility of parents in the West is child-rearing. The burden of childbearing and upbringing rests on their shoulders, and they are expected to nurture and train their children within the limits of the family resources. Generally, this process occurs within the nuclear family consisting of a father, mother and other siblings, or, if there is no father present, under the care of the mother. In a social reality such as this, the economic theory relating fertility and household utility maximization is accurate; parental resources, income and ability to provide care are important fertility considerations. Bearing, rearing and providing for many children often impoverishes parents on economic and social levels.

In sub-Saharan Africa, particularly in West Africa, parents do not necessarily raise their children themselves, and thus, parent-child relations alone often fail to explain the complexities of factors, costs, benefits and rewards involved in childbearing. An African child can, at any age, leave his or her parental home to reside in another geographic and environmental location, which may vary from a few houses away to many miles. Child fostering or fosterage, child lending, child circulation, child migration, child relocation, wardship, child rearing delegation, non-maternal residence, etc. are some of the many terms that have been used to describe a common African phenomenon: the assumption by surrogate or non biological parents of the responsibility for raising a child (Goody, 1975, 1978; Isiugo-Abanihe, 1983, 1985; Sinclair, 1972; Fiawoo, 1978; Bledsoe and Isiugo-Abanihe, 1989; Page, 1989). According to Goody (1978:227), such practices are "not simply occasional statistical anomalies in the otherwise even flow of nuclear family life".

A recent comprehensive study of this social trend in sub-Saharan Africa demonstrates that it is indeed a widespread phenomenon, reaching high levels of occurrence over wide areas of the continent (Page, 1989). At the

* Department of Sociology, University of Ibadan, Ibadan, Nigeria.

very least, in many parts of Africa, the parental household is but one of several potential homes for a child. Yet, studies on fertility and mortality, the central concerns of demography, are only beginning to become cognisant of this important institution. As we inquired in an earlier work (Isiugo-Abanihe, 1983), if children do not have to live with their parents, how accurate can predictions of childhood mortality be if they are based on maternal variables? or if a woman can use fostering to reap the rewards of high fertility, how can we (why would we) expect the burdens of child-rearing to reduce this fertility? or, why would we think that parents will derive benefits only from the children they bear? It is clear that the conditions of the household in which a child is born may be irrelevant to his or her vital experiences. A network of kin, with the claims and obligations they share or exchange, may be more crucial to the child's present and future experience and achievement. Fostering, certainly, adds a peculiar complexity to African demography and parenthood, and as Page (1989:437) has succinctly warned, ignoring its existence in demographic analysis "is to risk making nonsense of discussions of childbearing itself"; and, ignoring this risk makes "nonsense of discussions of both fertility and child health". The subject matter of this paper is African parenthood and widespread fostering, and their relationship to fertility.

CHILD FOSTERING AND PARENT-CHILD RELATIONS

Demographers were slow at focusing attention on the apparently widespread incidence of child fostering in Africa, despite both the vast anthropological literature on the phenomenon, and its implications on reproduction and child survivorship. Child fostering is an important aspect of family organization among many ethnic groups in Africa, it shows little sign of weakening under contemporary social change on the continent. Among many cultures this practice has been institutionalized. The general regional pattern of child fostering in sub-Saharan Africa has been presented in a rather painstaking analysis carried out by Page (1989). The general picture of fostering emerging from that study accurate for a large number of countries with comparable data is as follows:

(1) Low incidence in Sudan, parts of northern Nigeria, and eastern Kenya. Among these populations, the percentage of children under 15 years of age who were not living with their mothers was less than ten.

(2) Moderately high incidence of child fostering (10 to 20 per cent), in most of Kenya, Cameroon, the rest of Nigeria, northern Ghana and northern Ivory Coast.

(3) High incidence (more than 20 per cent) in parts of southern Cameroon, and throughout southern Ivory Coast and central to southern Ghana. Data presented elsewhere (Isiugo-Abanihe, 1983) indicate that this pattern is highly prevalent in Liberia and Sierra Leone.

From the foregoing, the apparent trend that emerges is of a higher incidence of child fostering in West Africa than East and Central Africa. In order to give an accurate spatial distribution, this practise needs to be more thoroughly studied in many parts of Africa. Data from large and comparable studies, such as the Demographic and Health Surveys (DHS), would be useful in studying the frequency and motivation of the child-fostering in different countries and sub-regions.

Ideally a child to be fostered leaves home between the age of 4 and 10 years, and may remain away anywhere from a few months to many years, or even to adulthood. Infants and young children, however, are also boarded out, to be raised and nurtured by a grandmother or other female relatives, only to be recalled or relocated when they are ready to start school (Bledsoe and Isiugo-Abanihe, 1989). Among many African societies, relatives of both parents are recognized as having the right to rear and sponsor children, – sons usually residing with male relatives, daughters with female. Goody, for instance, has observed among the Gonja of northern Ghana commonly agreed rights of kinsfolk to take and rear children apart from their biological parents. Foster parents also have recognized obligations toward their charge (Goody, 1965; 1978). Often there are sanctions among the Gonja for refusing to allow children to be fostered. Ideally, a brother claims his sister's son, who lives, works with him until he reaches adulthood or is ready to marry. Similarly, a sister has nurturing rights on her brother's daughters until the age of marriage.

The institution of fostering derives from the cultural belief that children belong to the extended family or lineage or the community. The Igbo say that "one person does not own a child; a child is the child of all". The Mende similarly believe that "a child is not for one person" (Bledsoe, 1988). Among many other African societies children are viewed in this same sense: as joint or common property of the lineage. In many situations, therefore, children literally move from one home to another within the community, eating and sleeping with their peers, and working for any household that needs their labour on a particular date. As Fiawoo (1978) argues, the goal of child rearing in Africa is the inculcation of cultural norms, thus making the child an obligation not only to his or her family, but also to the surrounding society. Hence, when the nuclear family has certain limitations likely to impede the child's optimal development, or if any of the parental roles cannot be adequately filled, the child is delegated to a member of the kin group who can provide for them.

Parents in Africa desire large families because they seek or derive certain values from their children. There are, of course, consequences of this choice: the financial costs of raising many children, childrearing demands, restrictions on parents' outside activities, and costs to other social relationships. Because society at large benefits from the values of children, parents seek to minimize the costs by sending them out or delegating child-rearing responsibilities to members of the society. Hence, Fiawoo (1978) describes child fostering as a welfare system built into either the family structure, or the social system of which the family is a part. The roots of

child fosterage in Africa are found in the traditional reciprocal kinship obligations in the extended family.

Although kinship fostering predominates, there is considerable fostering with non-relatives: children are sent to reside with certain people who occupy special positions within the society, such as pastors, teachers, arabic scholars, craftsmen, traders, etc. Such fosters, depending on their age, usually provide help as required by their mentors, in turn of which they are educated, trained or imparted the skill of their masters. Also, many of the domestic servants or maids, in urban homes across West Africa are fostered children, often from the same rural area or ethnic group as their masters or mistresses. In Nigeria, many children, some as young as 5 years, are now contracted out by middlemen who make their rounds monthly to collect the wages of their clients. Media coverage of this novel dimension in child circulation has been sensational, ranging from charges of child abuse, and child labour to slavery and child selling (by parents) and buying (by middlemen). Given its prevalence and the specificity of the areas of origin, this is a subject of future research interest.

The African anthropological and socio-demographic literature is replete with evidence of the importance and peculiarity of parenthood and parent-child relations. Topics such as the African desire for large family size, the high value placed on children, and the strong bonds between parents (especially mothers and children), have been closely examined and there has also been extensive study regarding how rights over children and women's marriage, sexuality and childbearing are allocated. Yet in Africa, apart from childbearing, other aspects of parenthood (nurturance, training, sponsorship into adulthood, and endowment with civil/kinship status) can individually be split off from the rest and made the object of sharing, delegation or transfer (Goody, 1978). In some cases, parental roles can also be preempted altogether (Goody, 1978; Page, 1989; Bledsoe and Isiugo-Abanihe, 1989).

The widespread occurrence of a variety of practices involving the delegation of parental roles to others has obvious implications for parent-child relations. Parenthood is concerned with solving the problems involved in bearing and rearing children, and establishing them in their turn as effective adults, while parent-child relation refers to the reciprocity of rights and obligations between parents and children. Foremost is that childbearing itself entails a strong emotional attachment between parents and children by way of love, care, affection, etc. Children are very close to their parents, particularly mothers, who provide the needed protection and support. In nurturance or upbringing, parents take responsibility for the child's socialization, provision of food, shelter and training. Children are continually being prepared for a happy and viable adulthood, at which stage most parents cease to support them. For their part, children are expected to play certain social, economic and political roles for their parents. Births, marriages, building houses, funeral and religious rites, etc. are some of the social events in the family for which children play an important role, enhancing the social status of their parents. Children are expected in their

adulthood to provide economic and old age support for their parents. Children are also important political forces for their parents such that childless people, or those with a few children, are accorded low status in the political system of the community.

The surrogate nurturance of infants and young children creates a close affective bond between foster parents and fostered children, similar to the bond between natural parent and children. Thus a fostered child maintains reciprocal obligations both to his or her natural and foster parents. They provide social and economic support to their foster parents whenever occasions arise, such as during the marriage of their children or other festivals; they also provide support to their foster parents during old age or periods of illness. Fostered children play remarkable roles during funeral ceremonies of their foster parents, even though they are generally not entitled to any inheritance from them. Some even reciprocate by bringing up the younger children of their foster parents or their grandchildren in appreciation of the head start they received while being fostered. Thus, the institution of child fostering is beneficial to the three parties involved in it. Natural parents benefit because they are relieved of the burden of child rearing and are also freed to participate in other activities, at the same time they reap the future rewards of a large family size; their children are sent to homes where they are more likely to receive the preparation which will enable them to do better in life than if they were raised at home; parents establish bonds with the children they fostered, and often with their parents, as well, and are thus guaranteed of future support and maintenance.

RELATIONSHIP WITH FERTILITY

Various researchers have attempted to study the relationship between child fostering and fertility (Isiugo-Abanihe, 1983, 1984; Bledsoe and Isiugo-Abanihe, 1985; Blanc and Lloyd, 1990, among others). In the absence of a new data set to explore this relationship, this section will draw from my earlier work as well as from recent fieldwork experience and observations in Nigeria and Ghana.

Fertility is high in sub-Saharan Africa by world standards, with total fertility rate in excess of 6 children in most countries. The practice of child fostering is one of several cultural institutions that help to sustain this high fertility. Most African cultures place considerable social, economic and emotional value on children, and exhibit characteristic apprehension in having a small family. There is a profound fear of having no child at all (Caldwell, 1982). This demand for children is particularly high because they benefit not only their parents but also the community. Thus in most cultures a large family size continues to be desirable because of the balance of values and disvalues attached to children (Bulatao, 1980). In fact, it is possible that the demand for children might outstrip the parents' ability to produce them, due to the operation of two opposing forces. Parents want

a large family in order to maximize the benefits accruing from intergenerational wealth flow (Caldwell, 1982), while at the same time various environmental and biological factors place a limit on the ultimate reproductive capability of a woman (and consequently on her achieved family size (Easterlin, 1975)).

It would then appear that in peasant societies of Africa the larger the family size the better. In fact, Caldwell (1982:25) has observed that "the economic well-being of the Nigerian family does not change very much with family size and hence the social advantages of eight children outweigh those of four, and completely eclipse the horrors of no-, one- or two-child families". Because power and prestige continue to be assessed, at least in part, by the number of adult children and their socio-economic positions, there is profound interest in sending children out early in life, to different places where their survival and future attainment appear more likely (Isiugo-Abanihe, 1983). A woman with 10 children, though achieving prestige and recognition in the society, does not necessarily raise, or reside with, all the children; at any particular time most of the children may be living with others as fostered children. In a society where couples bear many children, some of whom are destined to be fostered out, there may be no strong relationship between a couple's fertility and their economic ability to support a family of a given size. As a way of helping or rewarding those who adhere to the societal norm of large family size, members of the lineage, and even strangers, ask to foster children from those who have a large number. Thus, the institution of fostering contributes to the persistent high fertility in sub-Saharan Africa.

Furthermore, no child is 'unwanted' in a situation of institutionalized fosterage. Caldwell has noted that in Nigeria, as in most of Africa, the marginal child is believed to be an advantage rather than a disadvantage. Only 20 per cent of his sample said that a marginal child makes a family poorer (Caldwell, 1982:24). Families with high fertility do not necessarily suffer or lose status, this is due partly to the sharing of obligations and responsibilities within the extended family or the kinship. Child fostering is but one form of many kinship institutions which have evolved over the years to minimize the negative or undesirable consequences of prolific childbearing. Even women participating in modern sector employment are usually able to sustain relatively high rates of childbearing because fostering provides both extended family support in childrearing, and relatively cheap labour, as a source of child care (Blanc and Lloyd, 1990; Isiugo-Abanihe, 1984).

Conceptually, the exchange or availability of children to be fostered operates in a demand and supply framework (Isiugo-Abanihe, 1984). The demand of fosters is a function of a number of factors pertaining to the foster parents or caretakers. Among them are their life cycle stage, the number of own-children, desired family size, income and socio-economic status, expected present and future benefits from fostered children, and the strength of the kinship ties. For instance, younger women and those in their prime childbearing years are more likely to take in the children of

others to help in household work and in taking care of their young children. High status couples or those who maintain strong kinship ties tend to foster-in the children of others as household help in exchange for their training and schooling (Fiawoo, 1978). Also, where expected future benefits from fostered children are high (as in the case of a grandmother who raises her grand-children, and by so doing claims a stake on their future prosperity; or a young man who fosters his brother's sons from whom he expects help to train his own children), the demand for children for fostering may be high (Bledsoe and Isiugo-Abanihe, 1989).

Families with a large number of children, or those whose children are fairly old, tend to show a lower tendency toward fostering. Our work in Ghana and Nigeria shows that in-fostering of children is inversely related to fertility, that is, women who have low family size are more likely to foster-in children (Isiugo-Abanihe, 1983). This, in part, suggests the substitution of foster for own children. Many people, but not all, who foster close relatives (such as their younger siblings, nephews or nieces) often treat and regard them very much as their own children. Thus, an urban couple to whom rural relatives consistently send children may often consider revising their projected family size in order to be able to adequately maintain their children and their cousins (whose parents may have aided them to attain their current status). Substantial loss of status results when these upwardly mobile people have to provide for a large family consisting of a high number of biological and foster children. This is likely a strong motivation for deliberate family limitation. Also, very much like adoption (which is not common in sub-Saharan Africa), the availability of related children in their home (who might be treated or regarded as own children) could discourage a couple who have had difficulties with childbearing, fetal loss or early infant deaths, from further attempts.

The supply of fosters, on the other hand, pertains to the biological parents, and is a function of the number of own children at a particular time, parental aspiration for a child and the corresponding future benefits expected. Other factors which affect the supply of fosters include marital patterns, dissolution of marriages, mother's past experience with childhood mortality, her economic activity and alternative child care options, and other non-economic motivations (such as kinship ties). For instance, parents who maintain strong kinship ties with relatives, or those whose marriage have been disrupted, are more likely to send their children to others. Also, working mothers, especially in urban areas, are more likely to send out their children if their work conflicts with childrearing and nursing (hence the apparent compatibility between work and fertility commonly found in many African populations).

Since fostering is a strategy to redistribute the costs and benefits of children across a larger kinship network, the number of children a woman has clearly affects the supply of fosters (Isiugo-Abanihe, 1984). Blanc and Lloyd (1990:36) have shown that the more children a woman has in a particular broad age group, the more likely she is to foster out a child in that age group. Apart from parents of a large family size, those who have high

aspiration for their children are also more likely to foster out their children for rearing and some form of training if they cannot afford to provide it themselves. They benefit by shifting parental roles to different people, while still hoping to reap the advantages of the improved situations of fostered children that come with maturity or independence. For instance, fostered children could acquire education or learn a trade, which represents profound human capital formation – an investment that translates into considerable intergenerational wealth flow, from children to parents, grandparents and the extended family.

Indeed, one of the reasons for having large families could be to send some of the children away to relatives and thereby to strengthen kinship ties or to show affection in a tangible way (Goody, 1973, 1975). Thus, a daughter might decide to have an additional child because her mother needs one. In Ghana and Nigeria parents (mainly mothers) put considerable pressure on their daughters (married or single) to have children for them to raise. While I was in Ghana in 1991, a social welfare officer reported in a television programme on teenage pregnancy that many parents encourage their young daughters to have babies for them. This practice is also evident among the Mende of Sierra Leone, the focus of Bledsoe's intensive ethnographic studies.

Among the Gonja of Ghana (Goody, 1973), the first girl born to a union is often given to the father's sister, and the first or second son claimed by the mother's brother; furthermore, as Schapera (1941) observed for some southern African tribes, parents can agree beforehand that the next child born will be for a certain relative. In cases like these, it is certain that the institution of child fostering affects a woman's fertility and the ultimate size of her family, even though the practice may not have originated with this end in mind. It is, however, important to note that widespread fostering may discourage family planning. If parents know beforehand that any surplus children could be sent out, there may be little need or inclination to curtail fertility. Thus, although these societies are essentially in a natural fertility regime, fostering could lead to the birth of excessively large numbers of children, most destined to be sent out to be raised away from their parents.

African fostering, therefore, adds a unique dimension to parenthood and parent-child relations. Where the practice is widespread, parental resource stock, income or ability to take care of children might not adequately explain fertility. The economic costs of children to parents are lowered by the practice of fostering children out (simultaneously increasing their potential value). The extended family on which child fosterage is buttressed, acts to alleviate the hardships of large family size. The delegation of parental roles means the sharing of childrearing responsibilities, and the removal of the burdens and constraints of prolific childbearing. This also implies that the limitation of fertility by the small elite group does not necessarily guarantee them a small family size. On the contrary, they "inherit" large families because they constitute the role model to whom

relatives and non-relatives want to send their children for fostering, some almost being 'dumped' on them to the disapproval of one or both partners.

It is easy from the foregoing to see how high fertility may affect child out-fostering, since fostering is a strategy that redistributes the costs and benefits of childbearing. The more children a woman has the more she is likely to out foster. Fostering allows a woman to socially regulate the size and composition of her family, and to mitigate the costs of high fertility (Bledsoe and Isiugo-Abanihe, 1989). As these authors observed, by fostering out economically burdensome children during difficult times, such as seasonal hardships or when several children are born in rapid succession, women can buffer the costs, in terms of labour and sustenance, they would have expended for their children.

A less obvious impact is that the institution of fostering may directly or indirectly lead to high fertility for a woman, or a society where the practice is widespread. Under such a situation, women are aware of the reality of fostering, and therefore see little need to reduce their family size. Where fostering provides the apparent safety valve for overcrowded poorer families, it is irrational for the less well-off to reduce their fertility, unless for health reasons. Admittedly, the hypothesized relationship is more relevant in a population with high contraceptive prevalence. However, it is applicable in a natural fertility situation as well: if early child fostering interrupts an otherwise long period of lactation; if couples aim at having many children (some of whom are destined for one relative or another); if couples, consciously or unconsciously, attempt to replace children who are boarded out by becoming pregnant sooner; or where young women, particularly single ones, attempt to have children due to the pressure of their mothers who want to foster them.

It would thus appear that fertility and child fostering are mutually reinforcing, or are jointly related, in most societies where the practice is commonplace. We examined this proposition for Nigeria and Ghana using a structural model in which the institution of child fostering and fertility are viewed as functions of each other, in a set of additional explanatory variables (Isiugo-Abanihe, 1983). A simultaneous system of equations were found necessary to describe relevant behaviour, since a woman tends to send out more children the higher her fertility, and fertility tends to increase the more people are available or willing to foster-in the children of others.

Two stage least squares regressions demonstrate that the number of surviving children and child fostering are jointly dependent within the context of a simultaneous system of equations in both Ghana and Nigeria (Isiugo-Abanihe, 1983). Holding other variables constant, women with higher family size foster-out children more frequently than those with smaller family size. One of the responses available to parents faced with a large family size, is to send some children elsewhere to be raised, thereby reducing the family to a more manageable number. Viewed this way, child fostering is an adaptive strategy to simultaneously relieve excessive burden on mothers or parents while maintaining the societal norm of high family size.

The analyses also reveal that the incidence of child fostering affects fertility positively, a relationship supported by anthropological evidence such as: in some cultures a couple can decide who gets a child before it is born; daughters could decide to have a child for their mothers as a compensation for their absence from home. Furthermore, where claims of specific order or sex of children rest on certain members of the lineage, pressures, directly or indirectly, could be put on couples and single women to bear children at a faster rate than would been the case in the absence of such pressures. Among the Igbo, elderly women, usually relatives of the husband, are known to exert pressure on younger women to have children more rapidly, often by taking away infants from their mothers. Our work suggests that in a society where child fostering is prevalent, women tend to be exposed to childbearing more frequently than would have been the case if the practice were unknown. Women aware of the options of child fostering tend to have more children and also tend to show less concern for fertility reduction.

PROSPECTS OF CHILD FOSTERING

Although Blanc and Lloyd (1990) have suggested that the incidence of child fostering in Ghana may have begun to decline, their evidence is rather tenuous. We speculate that the future of child fostering will depend on the pace of socioeconomic development in Africa and the spectrum of the population that will be included among the 'modernized' in years ahead. The demand for fosters is high in traditional and transitional stages of development because of the predominance of strong kinship ties and expected future benefits. The supply of fosters is also high, and may in fact, lag behind demand in places because of the availability of potential takers or foster parents.

With modern development, however, the demand for fosters starts to drop to lower levels. Some of the factors that give rise to a decline include: weakening of kinship ties and increasing rejection of childrearing obligations or assistance, alternative child care means (such as day care or creche, adult maids or grandmothers moving in with daughters), and the reduction in fertility accompanying development (which also implies less demand for fosters as child tenders). The supply of fosters remains high in the initial stages of modern development (the increasing differentiation between rural and urban areas, and also among people, makes fostering attractive). The need to send out children as maids, apprentices, etc. also increases the pool of fosters in the transitional society. The supply of children for fostering also increases due to declining mortality rate, and the spatial and social break-up of families through, respectively, migration and family disruption. As modern development becomes more widespread, however, the supply of fosters declines as these conditions become operative: fertility starts a decided decline (which is also associated with a more emotional attachment between parents and children); parents start to realize that they

are the best providers for their children; child and social welfare measures are introduced, including laws against child labour, child abuse and child lending or trafficking.

Further, as more people embrace development, and as the hardship of economic structural adjustment programs continues unabated, more and more people have begun to look inward, appearing less willing or less capable to honour the claims and obligations of the extended family. Thus, as development takes root, parents would increasingly desire fewer children and assume more responsibility for their upbringing. Child fostering would begin to decline in sub-Saharan Africa. It is, however, pertinent to point out here that the AIDS epidemic, widely reported in parts of Africa, may lead to an increase in the supply of children available for fostering in specific areas. Governments must demonstrate a strong commitment to the welfare of such children through institutionalization, especially given that the demand for such children as wards or fosters may be low. Clearly, the above framework for the evolution and changing functions of fostering is tentative. More qualitative and quantitative research is necessary to chart the course of fostering, and to shed light on the nature and complexities of the practice across time and space.

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ABSTRACT

The widespread occurrence in Africa of a variety of practices which involve delegating parental childbearing roles to others has obvious implications for fertility and parent-child relations. Child fostering derives from the belief that children belong to the extended family, lineage or community rather than to biological parents *per se*; it is a strategy to redistribute the costs and benefits of childbearing across the larger kinship network. Where the practice is widespread, therefore, parental resource stock, income or ability to take care of children do not adequately explain fertility. Our analysis suggests that fertility and child fostering are mutually reinforcing, or jointly dependent within the context of a simultaneous system of equations. Parents faced with a large family size adjust by sending some children elsewhere, thereby reducing the family to a more manageable size. Also, the institution of child fosterage affects fertility positively; since parents know beforehand that any surplus children could be sent out, there may be little need or urgency to curtail fertility, leading to the birth of excessively large numbers of children destined to be sent out to be raised. Thus, parent-child relation, involving the reciprocity of rights and obligations between parents and children, is not a straightforward relationship in Africa as in the West, where child rearing is the primary responsibility of parents. We speculate that as modern development takes root both the demand and supply of fosters will decline. Some of the factors giving rise to a declining demand include: weakening of kinship ties, increasing importance of alternative child care means and institutions, and reduction in fertility which should accompany development. On the supply side, a decline will be a function, among other, of the diminishing differentiation between rural and urban areas, fertility decline which is also associated with more emotional attachment between parents and children, increasing realization by parents that they are the best providers for their children, and the institution of social welfare programs including laws against child labour, child abuse and child lending. However, the AIDS epidemics, especially its spread through heterosexual partners as is widely reported in parts of Africa, may lead to an increase in the supply of children available for fostering in specific areas, unless governments demonstrate a strong commitment to the welfare of such children through institutionalization, especially given that the demand for such children as wards or fosters may be particularly low.

Changes in the Costs and Benefits of Children to their Parents

Paulina MAKINWA-ADEBUSOYE*

Perception of the value of children affects the influence of socio-economic change on fertility preferences and behaviour of parents (e.g. Bulatao and Arnold, 1977; Fawcett, 1983). By increasing their costs to parents, socio-economic changes tend to diminish the value of children, which may lead to a lower demand for children. Costs of children rise when the amount of schooling, health and nutrition they are provided with increases; when young children are freed from labour and from contributing substantially to family income; and – as is presently the case in most sub-Saharan African countries – when economic recession causes children to renege (or increases the likelihood that children would renege) in meeting expected obligations of support to parents in old age.

Definition: "value of children"

The phrase, "value of children" encompasses trade-offs in the costs and benefits of children necessitating the inclusion of a wide array of variables in empirical studies of the subject. These variables, common elements of the perceived costs and satisfactions of children, fall into several categories. Besides the financial and opportunity costs that include health repercussions to mother and children, there are costs to social relations exemplified by marital strains arising from child-rearing. In turn, parents may be rewarded by different benefits, namely: instrumental assistance, rewarding interactions and psychological appreciation (Bulatao, 1979).

Rising costs of schooling

In recent years, a significant component of child-rearing costs is related to schooling – the price of which has risen considerably. Economic hard times and the on-going structural adjustment programmes (SAP) in

* Population Research Unit, Nigerian Institute of Social and Economic Research (NISER), P.M.B. 5, U.I. Post Office, Ibadan, Nigeria.

many African countries have led to drastic reductions in public expenditure on education resulting in an increased parental burden. The relationship between children's participation in school and fertility is of particular interest. Heightened parental aspirations to raise, through education, the quality of children (which entails significant sacrifices in the form of rising school fees, levies, costs of uniforms and foregone opportunities by mothers) have been a major factor leading to small family size in other developing countries (e.g. Knodel *et al*, 1985).

This paper examines recent increases in child-rearing costs, such as the costs of education, and their effects on the value of children in countries of sub-Saharan Africa. The first section reviews the main theoretical perspectives concerning the relationship between fertility and the costs and benefits of children. These theoretical perspectives are then discussed in the context of sub-Saharan Africa (section two). Parental aspirations for children's schooling and perceived attendant costs under conditions of economic hardship and SAP are examined in section three. The next two sections look at the effects of socio-economic changes on intergenerational wealth flows and on child fostering. A summary of the main findings, and their larger implications for fertility decline, is presented in the concluding section.

THEORETICAL APPROACHES

To evaluate changes in the costs and benefits of children, this paper depends on three inter-related theoretical perspectives, namely: the 'New Home Economics' or the Economic Theory of Fertility (Becker, 1960), the 'Wealth-flows' Theory (Caldwell, 1976) and the 'Transactions Framework' (Fapohunda and Todaro, 1988). Previous writers have challenged some aspects of the first two¹. However, elements of the three arguments which are germane to the present discussion are presented below.

The Economic Theory of Fertility

The Economic Theory of Fertility, which was originally formulated with reference to urban, Western, industrialized economies, is also applicable to developing economies in so far as couples do exercise some choice over the number of children they have. Essentially, it attempts to explain, in economic terms, the household demand for children who are regarded as 'commodities'. Given certain assumptions, demand for children is influenced by 'income effects' and 'price effects'. The latter is of greater importance to this paper. The relative costs of inputs (time and goods) affect the relative costs of children and other commodities, and the quantities

¹ For an example of a detailed discussion on the irrelevance of the assumptions of the Economic Theory of Fertility to the African situation, see Fapohunda and Todaro, 1988. Both Thadani, 1978, and Cain, 1982 have challenged the wealth-flows theory on various counts.

demand of each are affected by relative prices. Therefore, if inputs into raising the quality of children become more costly relative to inputs to other commodities, there may be a shift from children to these other, 'cheaper' commodities. This is called the 'price' or 'substitution' effect. Thus, the higher is the cost of the inputs (like costs of education) needed to raise children and the higher the quality of children demanded, the lower the demand for children.

Transactions Framework

Because the Economic Theory of Fertility assumes homogeneity of households which does not conform with African reality, Fapohunda and Todaro (1988) have suggested the 'Transactions Framework'. This framework places the locus of reproductive decision-making at the individual, rather than household, level by explicitly incorporating the concept of spousal separateness. It is a common phenomenon in African societies, where polygynous marriages are sanctioned by custom, for husbands and wives who belong to the same household to operate separate incomes and incur disproportionate amounts of child-care costs. The resulting differentials in costs of children to a conjugal pair may lead to differences in their demand for children.

The Wealth Flows Theory

A third theoretical perspective, the 'Wealth Flows Theory' is based on transfers of wealth between parents and children. According to Caldwell (1976), inter-generational wealth flow is usually in favour of parents – a major reason for the high value of children among African parents. This direction of flow is mediated by the economic and social attachment – characteristic of pre-industrial societies – between nuclear and extended families, and "it is apparently impossible... for a reversal of flow... to occur before the family is largely nucleated both emotionally and economically" (Caldwell, 1976:355).

The major generalization emerging from the wealth-flows theory is that actual and expected transfers of wealth from children to parents will continue to encourage a high demand for children. By extension, therefore, all economic benefits of children, including added income from child labour, will encourage a high demand for children. The Economic Theory of Fertility hypothesized that costs associated with the production of high quality – better educated – children will significantly predict the demand for children. However, as suggested by the Transactions Framework, demand may be affected by gender. Empirical evidence will be used to examine these propositions in the following sections.

BENEFITS OF CHILDREN

Demographers, in considering the inter-relationships between economic variables and fertility, have mainly been concerned with the study of how economic considerations affect fertility. This focus, perhaps, explains the exaggerated emphasis on the instrumental benefits of children to parents. The methodology employed in arriving at the general conclusion that African parents are motivated to have large families mainly by present and future economic gains is also not without flaw. It is difficult to ascertain with current survey responses the causes of the past actions that are resulting in today's large families. The underlying assumption, which may not be justifiable, equates the reported advantages of large families with the motivational reasons for having them. According to several surveys, parents, in addition to mentioning instrumental benefits, also cite some social-psychological advantages of children (such as children make adults complete through parenthood). The special and coveted high status which children bestow on both mothers and fathers is, together with other social-psychological benefits of children, probably more important in determining fertility than economic benefits. However, the emphasis of this paper is on instrumental benefits which have received greater attention in the literature and which are most likely to be affected, in the short run, by socio-economic changes. In the long run, all categories of perceived benefits of children will be affected by changing economic and social conditions.

Socio-psychological benefits

Children are validators of marriage, and they confer special status on women who are honoured for their role in perpetuating lineage groups. For example, in northern Nigeria where Islam is very much a way of life, women in purdah look forward to having children as a way of gaining respect and status (Trevor, 1975). Bisilliat (1983) and Clignet (1970) have documented the importance of children in conferring status on women in Niger and Côte d'Ivoire respectively. Among many ethnic groups a married woman is customarily addressed by the name of her first child as "mother of so and so". A childless woman, addressed differently, is thus constantly reminded of her childlessness. It cannot be over-emphasized that among most ethnic groups in sub-Saharan Africa, children are the only validators of marriage. In Nigeria, non-procreation is, among all ethnic groups, a primary cause of marital instability (Fadipe, 1970; Bolaji, 1984; Trevitt, 1973; Trevor, 1975). In cases where barren women foster children of relatives, these foster children are assets to such women as they shield them from strong social stigma, assist in trade and serve as their links with the outside world (Trevitt, 1973; Trevor, 1975). Children also convey special status on men. For example, among the Meru ethnic group in Kenya, a man only

becomes a "mwanki", a full adult male, when he has grown children (Mwambia, 1973).

Children as contributors to household income

A major component of the instrumental benefits of children to their parents is their productive value as contributors to household income, particularly when young. Children are also expected to provide to parents old age security and other financial assistance. Parents share their children's wealth through the institution of child fostering and sibling chains of support. In explaining the net private benefits of children for parents in sub-Saharan Africa, many authors have argued that children who can be inexpensively reared, provide, in their youth, cheap labour to parents; and in adulthood – because of deep-rooted filial piety arising perhaps from the gift of life or "fear of ancestors" – give substantial returns to parents in the form of old age support. For example, Caldwell (1977) argued that high fertility is economically rational in pretransitional, subsistence economies which rely heavily on child labour. In such societies, children live modestly and are a ready source of cheap labour. In corroboration of this view Boserup (1985: 386) describes the need for child labour in African economies as follows:

"Where women and children perform nearly all the agricultural work, the father of a large family is likely to become a rich man, while the father of a small family will remain poor. Therefore, this system provides motivation for a much larger family size..."

The two generalizations presented in the foregoing contain elements of truth which have been applicable, at different times, to some parts of the 39 countries of sub-Saharan Africa. However, while children's labour input is important in agricultural production, the focus on economic benefits has led to an overstatement of the case. Is it true, as the foregoing generalizations strongly suggest, that African children are reared primarily for their utility value as cheap source of labour? Do children augment family income to the extent that parents of large families are necessarily better off than those with few children? In fact, children have never been perceived by their parents as "cheap" in the sense portrayed in the literature although the need to cope with large families may account for greater participation of children in family work (both farm and non-farm). The high value of children in African societies is evident in several well documented characteristics, including the abhorrence of barrenness and the great lengths to which couples will go to have children. It is, therefore, reasonable to conclude that other forces, more compelling than simply a child's utility as an unpaid family worker in the house and farm, motivate the demand for children. Indeed, in several parts of sub-Saharan Africa, children run assorted household errands and, in rural areas, often look after domestic animals. According to Mhloyi (1988), in Zimbabwean society, most aspects of child care and other household chores (cultivation of land, herding of livestock, preparation of food and all related activities) are done by children.

But, the important point to note is that child labour is essentially a part of child socialization, one which may also yield additional earnings for the family. Children are expected to learn by doing.

As has been cogently argued, educated children are expensive to parents and less likely to have the time or the willingness to be child labourers. Yet, parents persist in educating their children. Since the advent of Western-style education, African parents have made tremendous sacrifices to ensure an improvement in the quality of life of the next generation (World Bank, 1988). The Hausa of Nigeria, who routinely send away their male children to live for indeterminate number of years with koranic teachers, have placed knowledge of the Koran above all considerations.

Overall, there is no conclusive empirical evidence in support of the economic rationality of high fertility in Africa. In a recent review of relevant literature, DeLancey (1990) showed that the number of children may have a positive or no effect on household income, depending on family structure and type of production. According to her, it is also impossible to determine conclusively whether or not the number of children in a household has a positive or negative effect on per capita income. This conclusion is not surprising given the fact that fertility and the economic conditions of families are jointly determined; a family, for example, with many children may have to use them on the farm simply to cope with its size.

Children as caregivers to elderly parents

By all accounts, the most important type of instrumental assistance to parents (receiving the most notice in survey responses) is the anticipated sustenance in old age. Children, as such, represent an investment for the future. Many studies have emphasized, as one of the strongest motivating factors for children, this need for old age security and the concomitant need to have at least one surviving child (e.g. Ukaegbu, 1977; Jensen and Juma, 1989; Uyanga, 1991). This pension value of children has been further amplified in the theory of inter-generational wealth flows, which states that in pre-transitional societies, "the net value of inter-generational wealth flows (labour and services, goods and money, and present and future guarantees, including old age support) is upwards, whereas in post-transition societies it is downwards" (Caldwell, 1983:459). Subsequently, the Caldwells (1987) argued that the direction of inter-generational wealth flows in Africa, due to the degree of filial devotion and the general strength of the kinship system, have remained in favour of parents.

While it is a readily verifiable characteristic that, in African countries lacking institutionalized security benefits, aged parents mainly rely on their own children for sustenance, it cannot be proven conclusively that, overall, the flow of wealth between parents and children always favour parents. The situation in pre-colonial and colonial Nigeria, especially among the Yoruba, was such that no incontrovertible conclusion can be reached about who benefited more – parents or children – from their mutual obligations and support. Elderly parents in a mostly agrarian setting traditionally lived

in their own homes, surrounded by their children and grandchildren. As such, they were the highly visible patriarchs and matriarchs of the extended family. In the Yoruba tradition, such elderly parents occupied very high status, old age conferring on them special social privileges. More important, perhaps, is the fact that these elderly parents never ceased to render invaluable services to younger generations, some of which were indispensable before the widespread availability of modern medicine. In their ascribed roles, elderly parents were effective family midwives, pediatricians, adjudicators of disputes, babysitters, informal teachers of ancestral history and family 'oriki' (praise names) and raconteurs of important, morality-laced fables (see also Faniran-Odekunle, 1978). Therefore, elderly parents were until their death of tremendous, unquantifiable assistance to younger members of the family, who reciprocated by assuming full responsibility for their care. Thus, economic, social and emotional needs of the elderly were adequately met through the extended family network (Fadipe, 1970; Tognu-Bickersteth, 1988). Although the care of the elderly was in general kin-based, the children were primarily responsible. Given this traditional set up, children even if they dared, could not renege on their obligation to care for the same elderly parents who had cared for them, and whose compound and farm they would eventually inherit.

THE COSTS AND ASPIRATIONS OF EDUCATION

Demand for children is characteristically high among African couples who also appear to prefer quality children. A combination, however, of low per capita income and the tendency towards large family size renders this preference largely unrealistic. Two popular sayings among the Yoruba of Nigeria underscore societal preference for quality offspring: "Omo beere osi beere" meaning "many children lead to unlimited poverty", and, "afinju omo kan soso sanju egbaa obun", meaning, "an only child who grows into a successful adult is worth more than one thousand non-descript children". Until recently, it was possible to live with this inherent contradiction verbalizing a preference for quality, while producing a large quantity of children.

Costs and Burdens of Education

The initial post independence policy of many African governments was to devote significant proportions of investment capital to social welfare programs, notably the expansion of education and health. This created a situation where majority of parents could literally have their cakes and eat them, too. Based on the Nigerian experience, the welfare policy resulted in drastic declines in mortality levels which, unmatched by a corresponding decline in fertility, resulted in rapid population growth. Provision of highly subsidized educational and health facilities exacerbated the prevailing pronatalist environment because parents did not bear the full costs of rearing their children (Makinwa, 1976). Other channels which were successfully

exploited by parents to spread child-rearing costs over the larger extended family included child fostering and sibling chains of support.

Since independence, sub-Saharan African countries have invested heavily in education. Substantial expansion and increased enrolment at all levels (most notably the primary and secondary school levels) were achieved mainly through massive government subsidies which ensured that school fees were greatly reduced or eliminated. For example, between 1979 and 1983 governments in all the states of southwestern Nigeria supplied students of primary and secondary schools with free text books. Moreover, in addition to free tuition, every undergraduate received a substantial living allowance. In recent years, however, governments of most African countries have been forced to reverse this post-independence trend of virtually free education. Tables 1 and 2 show the tremendous increases in enrolment at primary and secondary education since independence (circa 1960) to 1980².

Table 1
Primary and secondary school enrolment in sub-Saharan Africa:
selected countries, 1960 and 1980

	Primary total (thousands)		% Annual Growth Rate	Secondary total (thousands)		% Annual Growth Rate
	1960	1980	1960- 1980	1960	1980	1960- 1980
Sub-Saharan Africa	11,853	47,068	6.6	793	8,146	13.8
Mali	65	291	7.8	5	68	14.4
Gambia	7	43	9.6	2	10	9.1
Ethiopia	224	2,131	11.9	26	439	15.3
Ghana	503	1,417	5.3	191	686	6.5
Mauritania	11	91	11.0	1	22	19.8
Botswana	36	172	8.1	1	21	18.5
Nigeria	2,913	13,788	8.1	167	2,364	14.2
Angola	104	1,301	13.5	14	191	14.2

Source: World Bank, 1988. *Education in sub-Saharan Africa: Policies for Adjustment, Revitalization, and Expansion*, Tables A-1, and A-2.

A combination of rapid population growth and economic decline has necessitated significant cutbacks in public spending, and parents are being asked to bear a greater share of educational costs. One of the cardinal principles of SAP is an overall cut in government expenditure on social services (including health and education). The accompanying inflation has also led to a general rise in the cost of virtually every consumer item, including food, drugs, books and school uniforms.

² For most countries in the region, the period of economic decline began after 1980.

Table 2
Gross primary school enrolment ratios in sub-Saharan Africa:
selected countries, 1960 and 1980

	Number enrolled as a percentage of primary-school age population			
	Boys		Girls	
	1960	1980	1960	1980
Sub-Saharan Africa	48	87	24	64
Mali	13	32	5	18
Gambia	20	68	9	36
Ethiopia	11	46	4	23
Ghana	60	81	32	65
Mauritania	11	44	2	24
Botswana	36	82	41	100
Nigeria	54	113	31	83
Angola	23	132	11	115

Source: World Bank, 1988. *Education in sub-Saharan Africa: Policies for Adjustment, Revitalization, and Expansion*, Tables A-7.

Parental perceptions of this trend can be found in recent surveys, in which parents attributed their heavier financial burden to the increasing cost of raising and educating children. Time and again, participants in a 1990 survey of Lagos State, Nigeria, mentioned the increasing prices of every item and the diminishing opportunities for earning a living, as major difficulties confronting families. The increasing cost of raising children, especially of their education – cost of tuition fees, uniforms, development levies and examination fees – were often mentioned (Makinwa-Adebusoye *et al*, 1990). According to another study of villages around Calabar, south-eastern Nigeria, the majority of the male and female respondents considered large families as undesirable. The main reason, mentioned by about a third of all respondents, was the high costs of educating children (Uyanga, 1991). Similarly, in a Zimbabwean case study of two rural communities, education topped the list of childrearing expenses, along with food and clothing (which were spontaneously reported by parents) (Mhloyi, 1988).

According to cultural prescriptions, women in polygynous marriages are generally expected to feed their own children while husbands bear all other housekeeping costs. In practice, however, these women are *de facto* heads of matrifocal groups (termed 'hearholds') functioning within polygynous households (Ekejiuba, 1984). Women in charge of hearholds necessarily operate separate incomes and bear disproportionately larger costs of child-related costs, including school fees. This fact is poignantly highlighted, in Nigeria, by the 1989 anti-SAP riots which featured mostly students, workers and market women, who condemned the introduction of school fees and other levies.

Educational aspirations

The financial burden of educating children is compounded by heightened parental aspirations for their children's schooling. Partial evidence is provided by a recent (1988) World Bank policy study, which attributed the remarkable progress of western-style education in sub-Saharan Africa to "the sacrifices of African parents in their quest to provide a better standard of living for their children's generation" (World Bank, 1988).

Several localized surveys have also documented the widespread belief that education is important, and that both genders should be educated, even though girls may still receive lesser education than boys. Caldwell and Okediji (1976), in a study of Western Nigeria, reported that 92% of males wanted secondary schooling or above for their children. Ninety-seven percent reported that the best investment they could make was in education of their children. More recent evidence supports these findings. In a survey of females and males aged 12-24 years in five Nigerian cities – Lagos, Kaduna, Zaria, Onitsha and Enugu – 94% of the males and 93% of the females wanted university-level education for their sons and daughters (Makinwa-Adebusoye, 1991a). In a study of the micro-consequences of high fertility in Nigeria (based in the Agassa and Okhuesan villages of the Kwara and Bendel states, respectively), male and female participants in Focus Group discussions underscored the importance of educating children. They believed that educated children were better able than the non-educated to be of future help to parents, by sending money and/or helping to educate younger siblings (Okojie, 1991). In a 1981 survey of rural Kenya, respondents were asked how many years of education they expected to provide for each of their sons and daughters. For sons, fathers expected to provide an average of 13.0 years of education, while for daughters the expected average was 12.1 years (Dow and Werner, 1983:89).

In fact, studies focussing on rural-urban migrations have established the quest for education as a major reason for these movements. Rural parents, desiring higher education for their children, encourage these migrations by bearing the costs of transportation to urban relatives or townsmen (e.g. Makinwa, 1981). The quest for children's education was also a major reason for the widespread practice of child fostering – described in greater detail below – through which children were sent to live with relatives and non-relatives alike.

It is important to note that although the aspirations of parents for their childrens' education remain high, the prevailing, unfavourable economic situation has introduced some new dimensions. For example, in the south-eastern states of Nigeria, notably Abia and Enugu, female enrolment in secondary schools is the same or higher than male enrolment. The explanation of this lies in the currently high unemployment rates; parents and prospective male students prefer apprenticeship (becoming a skilled trader) to a graduation – after secondary or tertiary education – which is not a guarantee against unemployment or, at best, an uncertain future in the formal

labour force. Moreover, in Nigeria overall enrolment fell dramatically from 99% in the 1984/85 academic year to 90% in 1987 – a year after the introduction of SAP³.

Comparing costs and benefits of educating children

The costs of education go beyond the mandatory school fees and the cost of uniforms and books. Children who are, or have ever, attended school are very expensive to parents. Caldwell (1980) postulated five reasons why school children are less beneficial: schooling reduces children's potential for work; it places extra, indirect demands – such as better clothing – on parents; it creates dependency; it speeds up cultural change; finally, it serves as a major instrument for propagating the values of the Western middle class, including the emphasis on defining children as dependents.

There are very few studies that have made direct comparisons of the costs and benefits of children's education to parents. However, there is indirect evidence of parents' concern with such calculations. A survey of the Yoruba showed that parents were concerned with costs and economic and non-economic benefits of children. According to the survey, 44% of the men and women would accept a government payment of \$30,000 or more as an incentive, after four surviving children, to stop child-bearing. It is indicative of the importance of non-economic considerations that 28% said they would not accept any money (Caldwell and Okediji, 1976). Another survey revealed that Kenyan parents considered no sacrifice too much to make for children's education. The following statement by a Bungoma (Kenya) woman is revealing:

“...Educating children is a problem, though mine are just at primary level. We only pay the school building at three hundred and eighty shillings. But how to raise that sum? Another problem is that we both, me and my husband, have to struggle to buy uniform for my children. That is why I say I prefer staying in rags and let my children be educated.” (Jensen and Juma, 1989)

The increased need for education arises from the attraction of non-agricultural, wage-earning, urban employment, for which several years of Western-type education are mandatory. Moreover, parental aspirations are rooted in the conviction that educated children would be better equipped to provide for their parents' future needs. This conviction, coupled with agricultural stagnation, are responsible for the preference, by rural parents, of non-farm employment for their children (e.g. Makinwa, 1981). While parents may employ child labour for farming and other jobs – an integral part of children's socialization – they nurture the desire to free their children from the perceived drudgery and poverty associated specifically with farming, and generally with rural life.

Boserup (1985) has argued that, in parental calculations, the great expectations of support from educated offspring probably more than counter-

³ Enrolment ratio is 6-year old population compared with actual primary one enrolments in primary schools (Federal Republic of Nigeria, 1990:23).

balances the reductions in benefits from child labour. Given the rate, however, of unemployment among educated youth and the high rates of inflation, which greatly erode savings, it is becoming increasingly questionable whether these expectations can be met.

SOCIO-ECONOMIC CHANGES AND INTERGENERATIONAL WEALTH FLOWS

Given the types of socio-economic changes that have occurred in post-colonial period it becomes pertinent to ask: are inter-generational wealth flows in favour of parents? The economic and socio-cultural changes of urbanization, rural transition, migration, industrialization and development of modern political systems have affected, as in all less developed countries, the status and care of the older population in Nigeria (Eades, 1980 ; USAID, 1985). Since the advent of SAP in the mid 1980's, inflation and rising costs of living have worsened individual's ability to meet financial obligations. In Nigeria, for example, this situation is adversely affecting the traditional support system by diminishing the effectiveness with which it cares for the elderly (Togonu-Bickersteth, 1988). There is also evidence that as the number of old people increases (and the capacity of the extended family to provide for them decreases), meeting the needs of and caring for the elderly poses great strain on the caregivers and their recipients (Dow and Werner, 1983).

A paradoxical situation which is increasingly noticeable in urban centres is that instead of expected benefits, heightened investment in children's education is simultaneously generating additional costs to parents while reducing the benefits that traditionally accrued. Moreover, in recent years, parents, particularly those resident in urban areas, are finding that on the average a child is a substantial net drain on household resources. Olusanya (1988) in describing the Nigerian situation has argued justly that there was very little, or no, inter-generational transfer of wealth from children to parents in urban Nigeria. According to him, the fact that parents tended to live in rural areas while their children were urban residents did not infer traditional wealth flows, particularly since the needs of rural residents were mainly subsistence – accommodation and clothing of the simplest type – and did not cost much. In fact, the child's so-called transfers of wealth were no more than the occasional remittances (gifts) in cash and kind. Therefore, argued Olusanya, on the contrary, the child often got more in return from visits to village-based parents. Children would usually return to towns loaded with free gifts (from rural parents) of valuable foodstuffs; furthermore occasional parental visits to urban children were also accompanied with gifts of food-stuffs from villages. In the event that both aged parents and adult children resided in towns, Olusanya opined that parents rarely expected gifts from children who might be struggling to meet their own obligations. In fact, most urban parents were either gainfully employed,

relied, if former civil servants, on retirement benefits, or engaged in trade until very old age. In effect, concluded Olusanya, investment in children had become so substantial (in 1988) that children could hardly be expected to adequately compensate parents. Parents, on their part, seemed content with other, non-financial rewards of parenthood. In corroboration of the observation that parents continue to engage in remunerative employment in their old age, a recent study of elderly women in Oyo state of Nigeria revealed that 92% of the women aged 55 years and above, were engaged in various economic activities – including farming, petty trading and formal sector employment (Udegbe, 1991). According to Udegbe, many of the women who worked in order to cope with the harsh economic conditions would not have done so if they had other means of sustenance. Only 39% of the women seemed to be receiving any support from their children.

A recent study of rural villages around Calabar in southeastern Nigeria (which inquired into children's work and parental costs) revealed that a majority (48%) of male and female respondents found children economically less useful to their parents now than in the past. Even more revealing were the responses to the question "When your children have grown up/started work and got married, do you expect to depend on/live with them?". Although 46.5% expected to live with their children only when they (parents) were old, nearly one quarter of the respondents (23.3%) would "never live or depend on them (children)" (Uyanga, 1991). Although these reported intentions may differ from actual, future experience, they are suggestive of a re-evaluation, on the part of parents, of the total reliance on children for sustenance in old age.

A study in Kenya concluded that not only is wealth flow from urban-based children to rural parents low, but the physical distance is beginning to create an emotional distance between relatives left behind in rural areas and the educated, urban resident.

"Considering the general level of salaries, the income is often over-stretched. Distance is one of the major factors altering family relationships, reducing opportunities for visiting and interactions." (Jensen and Juma, 1989:179).

EVOLUTION OF CHILD FOSTERING

Another traditional avenue which allowed parents to share the costs of child-rearing is the institution of child fostering. Fostering is part of the sibling chain of support in which younger children are supported by older siblings, and it is particularly significant and effective when there are large age gaps between the oldest and youngest siblings. Children are usually fostered with other relatives, and in some cases, with non-relatives (including school teachers, priests, godparents and traders) with the aim of giving children some education (Isiugo-Abanihe, 1985 ; Okojie, 1991). In rural Zimbabwe, parents expect older siblings to educate their young ones (Mhloyi, 1988).

Only indirect estimates of the extent of child fostering are available. Isiugo-Abanihe (1985), using household data from Ghana, showed that in 1971, nearly 20% of all children aged 10 years and younger were foster children (not residing in the same household as their biological parents). Based on 1974 census data, he estimated that the proportion of children who lived away from their mothers in Sierra Leone was 29% for young mothers aged 15-19, and 36% for mothers aged 20-24. The proportions increased to 40% and 46% for women aged 25-29 and 30-34 years, respectively. From the 1974 Liberian census, it was estimated that the proportion of mothers aged 15-34 who had fostered children was about 40% (Isiugo-Abanihe, 1985). Page (1986) calculated similar estimates based on WFS household data and found that the proportions of children under 15 not living with their mothers was 13-24% in Cameroon (1978), 14-27% in Ghana (1979-80), 21% in Côte d'Ivoire, 10-16% in Kenya and 21% in Nigeria (cited in Frank, 1987).

There are very few studies focussing on child fostering. However, it seems that fostering is decreasing because parents are becoming more reluctant to give out their children to foster parents. Participants in Focus Group Discussions in the Bendel and Kwara states of Nigeria offered an insight into the causes of this reluctance. They reported that fostering may no longer be beneficial to anyone because current harsh economic conditions have rendered relatives, the potential foster parents, as poor as biological parents. Moreover, they reported that foster children were often flogged and forced to work long hours (Okojie, 1991).

SUMMARY AND CONCLUSIONS

Recent socio-economic changes (notably rising school enrolment, heightened parental aspirations for children's schooling, unabating rural-urban migrations, economic recession and the subsequent introduction of SAP in many countries of the region), have increased the economic burden of children and reduced the actual or expected economic benefits of children. Economic decline and the implementation of SAP have resulted in the reversal of the initial post-independence welfare policy favoured in many countries. Since the mid 1980's, severe cutbacks in government spending on social services, like education, have increased the parent's share of this and other child-rearing costs. Moreover, it would appear that traditional channels of spreading child-rearing costs, notably fostering and sibling chains of support, are becoming increasingly restricted and often less beneficial. This is the situation at a time when previous gains from education notably white collar jobs, with the assorted, prestigious, trappings of office life have heightened parental aspirations for educating their children, irrespective of sex.

In addition, spatial and social mobility, and the rapid pace of urbanization, have contributed to the breakdown of the traditional support system

for parents in old age. The harsh economic conditions are also responsible for high rates of unemployment and dwindling savings, brought about by high rates of inflation, making it more difficult for adult children to cope with their own immediate needs, and those of elderly parents.

Evidence is scanty, but as costs and rates of unemployment increase, reluctance to foster out small children is growing, and general economic hardship may be causing serious reconsideration of the value of children. Evidence from both a survey of young persons, aged 12 to 24 years residing in five major cities, and from the 1990 Nigeria Demographic and Health Survey (pertaining to the 15-24-year olds) consistently show the desired number of children to be 4.3 (Makinwa-Adebusoye, 1991b). In addition, the recent (1990) NDHS reveals that among all sampled women in south-western Nigeria (the home of the Yoruba who are known to desire high educational attainment by their children), completed family size is 5.5 children, a decrease of one child from the 6.6 children recorded for the same area during the 1981/82 Nigeria Fertility Survey. Recorded decreases in fertility levels in Kenya, in recent years, may also be connected with the rising costs of education and other child-rearing costs to parents. These findings are highly suggestive of the fact that increasing costs of children, especially in terms of education, are causing major shifts in their culturally defined high value. Overall, parents are becoming more aware of the costs of children and may be beginning to recognize trade offs between large families and educational attainment.

The relationship between fertility and children's utility has been previously exaggerated; it is also necessary to focus on the social and psychological determinants. In Thailand, an industrialized and urbanized country, the fact that the maintenance of elderly parents is still predominantly the responsibility of their children has not prevented the transition to small families. Available, though scanty and scattered, evidence makes generalizations over the entire region almost impossible. Some tentative conclusions, however, can be reached. The widespread economic misfortune, which shows no signs of changing, provides an environment which is conducive to family limitation, and in which existing family planning programs, if vigorously pursued, should thrive. Moreover, emotional ties to extended families notwithstanding, a realization that the coveted status of parenthood is equally legitimate when conferred by a few children will eventually result in a fertility decline in countries of sub-Saharan Africa.

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Abstract

The traditional explanation for persistent high fertility levels in countries of sub-Saharan Africa is the high value of children to their parents. In support of this argument, mention is made of several instrumental benefits to parents notably anticipated sustenance in old age and, through child labour, childrens' substantial contributions to household income. Another support for high fertility is parents' ability to spread child-rearing costs over the larger extended family through child fostering and sibling chains of support. This analysis suggests that recent socio-economic changes such as rising school enrolment and heightened parental aspirations for children's schooling, unabating rural-urban migrations, economic recession and the subsequent introduction of structural adjustment programmes in many African countries, have increased the economic burden of parents while reducing the actual or expected economic benefits from children. It would appear that traditional channels of spreading child-rearing costs through child fostering and sibling chains of support, are becoming increasingly restricted and may be less beneficial. These changes may be causing major shifts in culturally defined high value of children with far reaching implications for fertility decline in Africa.

Singular Fertility Patterns in Rural Africa: Socio-economic Differentiations and Transformation of Fertility Models in West Africa*

Patrice VIMARD**, Agnès GUILLAUME**, André QUESNEL**

Agricultural production systems in sub-Saharan Africa essentially rely on the efficient development of methods for attracting and exploiting labour. Indeed, the means of production employed are so underdeveloped (tools of limited technology, few chemical inputs...) that human energy remains the main factor in the production process. The mechanisms of reproduction and of labour force mobility are thus inherent in the operation of these systems rendering them inseparable from population dynamics.

Methods of exploitation of labour in the cash-crop producing African societies have undergone radical changes (recourse to different forms of share-cropping, growth of the wage-earning sector, monetization of remunerations for family labour,...) and school and health infrastructure have developed in step with economic growth. Paradoxically, however, these changes do not seem to have had any impact on demographic factors in general or on fertility behaviour in particular.

In most cash-crop economies¹, the locus of control for the reproduction and utilization of the labour-force has moved away from the lineage to the narrow domestic unit, and levels of education have risen. In spite of this, aggregate national and regional figures show that fertility levels remain high.

* Translated by Isabelle Wallerstein.

** ORSTOM, Institut Français de Recherche Scientifique pour le Développement en Coopération, 213 rue Lafayette, 75010 Paris, France.

¹ Cash-crop economies are the most developed economic agricultural system in sub-Saharan Africa and dominate in the forest regions, particularly in certain countries of West and Central Africa (Cote-d'Ivoire, Ghana, Togo, Nigeria, Cameroon...). The system is based on the cultivation of perennial crops (coffee, cocoa, oil palm...) mainly destined for export. In plantation regions, village agriculture, where individual planters group together, coexists side by side with large private estates or para-statal companies (in which case agricultural activity is often only part of an agro-industrial complex).

The aim of this article is to throw light on this paradox by analyzing the different ways in which these cash-crop producing systems have affected fertility models.

In terms of economic organization and the development of health and school infrastructure, the changes wrought by cash-crop economies, though broadly similar in nature, can be differentiated on the basis of:

a) the date at which the cash-crop economy was established and the situation of each population in the face of various economic changes,

b) the place occupied by the population (whether indigenous or immigrant) in the cash-crop production system which determines the role it will play in the changes under way.

Schooling, for instance, which has changed the place of children in society and the costs and benefits accruing from them can have differing and contradictory effects on variations in fertility according to the time-period and the population concerned. Similarly, economic crises and structural adjustment programmes can have varying impacts on demographic reproduction according to the community concerned and the nature of the crisis.

This analysis will concentrate on a number of significant West African rural populations, at different stages of integration into the cash-crop producing system and the channels of the cash economy and for whom survey data is available.

In the first part the socio-economic context of changing fertility patterns in the cash-crop economies of sub-Saharan Africa will be described: the autonomy of the domestic unit, the rise in schooling, the transformation of social relations between men and women and between parents and children.

The second part will attempt to show how diverging patterns of integration in, and contribution to, the cash-crop economy are expressed in terms of the reproductive behaviour of each population. This part of the analysis will focus on two communities living on the Dayes Plateau (South-West Togo): the Ewe, an indigenous group, and the Kabye, migrants originally from the North of the country (Quesnel and Vimard, 1988).

The comparison of two populations living in the same area and sharing the same history will, by allowing an approach that is both systemic and dynamic, shed light on the determinants of fertility change at work in the cash-crop economy such as that of the Dayes Plateau in Togo. To complete the analysis, the third part of this article will examine the case of an indigenous matrilinear population, the Akye of South-East Ivory Coast, long integrated into the cash-crop economy and living in a peri-urban zone. This should help to provide a better understanding of certain specific determinants of fertility trends (Guillaume, 1988; Faussey-Domalain and Vimard, 1991).

Lastly, the fourth part will focus on the Sassandra area of South-East Ivory Coast, which differs from other regions in that it was integrated into the cash-crop production system at a much later date, and because the area

was settled fairly recently and by a large number of different groups. Here, the object will be to discern changes in fertility in the, mainly immigrant, communities living on one of the last pioneering frontiers of West-African agriculture and cash-crop economy (Guillaume and Vimard, 1990, 1991).

This stepwise approach to changes in fertility among different populations is not intended to produce rigorous and systematic comparisons between cases; the aim, rather, is to identify the factors – whether structural or cyclical – that are decisive in the shaping of fertility trends.

Finally, these analyses will serve as a platform for exploring how the new social and economic constraints (greater autonomy of individuals and of domestic groups, entrusting the means of production to the individual...) and demographic constraints (declining mortality, marital instability), all generated by cash-crop economies, contribute to the creation of new demographic ideals. Do these ideals differ from one population to another? Do they arise out of a differentiation in the roles and statuses attributed to children? Do they develop in response to original and distinct strategies of social reproduction? These are some of the questions that will be asked in the conclusion in the hope of shedding light on the future course of fertility models in sub-Saharan Africa.

THE SOCIO-ECONOMIC CONTEXT OF FERTILITY TRENDS IN THE CASH-CROP ECONOMIES OF SUB-SAHARAN AFRICA

In African agricultural societies, large families were essential to safeguard the provision of manpower to cultivate the land, to ensure a sufficient number of members to support the older generation and to guarantee the continuity of social groups (families, clans, lineages...). Intergenerational wealth flowed mainly in the direction of children to parents, or rather from the younger to the older members of society, while the latter provided social control by regulating the mobility of women and their offspring (Meillasoux, 1975). These intergenerational exchanges to the advantage of the older generation was an inducement to have the largest possible families (Caldwell, 1978). Moreover, the survival of these social units at the demographic, economic and also political level, was dependent on women's capacity to bear children, particularly in matrilinear societies (Perrot, 1987, 168) such as the Akye society studied in this article, of which there are a fair number in sub-Saharan Africa. Social control encouraged high levels of fertility particularly when childhood mortality was high. This initial situation, which can be described as traditional or "pre-transitional" in the term coined by some demographers, in reference to the theory of demographic transition, was modified by the development of agriculture-based market economies.

Cash-crop agriculture went through different phases of development in response both to internal forces and to external factors such as fluctua-

tions in world prices for commodities. Briefly, four main periods, differing in time and space, followed the initial phase of plantation of export crops (1890-1950): a phase of expansion (1950-1965); a production crisis resulting from ageing trees and market instability (1965-1975); a phase of restructuring and redeployment (caused and encouraged) by modernization, increases in world prices and the extensions of production areas (1975-1985); the crisis caused by the fall in world prices and the fall-out from structural adjustment programmes (beginning in 1985)².

Cash-crop economies are founded on two elements: the transfer of land ownership into private hands and the use of labour from outside the family unit. From a social perspective however, the two structural elements of societies involved in these economic systems are: first, the autonomy of the domestic unit in terms of the organization of production and reproduction, and second, rising levels of education. These far-reaching changes in the social fabric directly affect the demographic conditions that determine the renewal of social systems and, ultimately, population dynamics.

The autonomy of the domestic group in the organization of productive and reproductive processes: transformation of social relations between men and women, fathers and children

The establishment of the plantations and the transfer of ownership of the land into private hands implied breaking away from the existing system whereby food production was organized by the lineage. The head of the domestic unit removed his wife and children from the communal organization of farm work and brought them to his own plantation to work for him. This transformed relations of production between husband and wife and more generally between men and women and between families and lineages in the village community.

When marital alliances no longer require the communal organization of production, control of alliances by the lineage is undermined. The conjugal tie between man and wife becomes more direct and consensus-based but is also more fragile. Henceforth, men exercise their power within the conjugal family instead of within the framework of the lineage. Husbands demand that their spouse work on their plantation; in return, however, they are obliged to pay her in kind or in cash and also, and more importantly, to support her and her children; failure to do so, which frequently occurs in times of economic crisis, leads to great marital instability.

The lineage, as the overall unit of production and social reproduction, breaks up into numerous sub-units both more autonomous and increasingly limited to the nuclear cell; marital instability further reduces the size of the domestic group.

² In each region, events pertaining to the macro-economic cycle (rising or falling prices, structural adjustment...), interact with local events (such as land saturation and redeployment operations undertaken with the help of public companies for agricultural development), which occur or emerge at different times and in different ways depending on the area.

The shrinking size of domestic groups resulting in a shortage of family labour tends to lead indigenous populations to call on an immigrant work force, as a temporary measure at first, then permanently. Once settled, these non-indigenous groups, separated from their original environment, immediately organize production around small domestic units. However, in their case, traditional family ideals are retained, marital instability is not as great and cohesion between domestic groups is better maintained than in the indigenous groups.

Education as a vehicle of intergenerational transformation in the fields of production and social reproduction

Education is the dynamic element that completes the transformation of relations of production within domestic units by altering the direction of inter-generational exchanges and by its recognition of the new position occupied by children in families and in society. School enrollment rates vary between populations and between social groups. They are highest in the autochthonous communities that were the first to develop economic systems, based on the production of cash-crops, lower in communities that came to the system later, and are often very low among non-native populations who continue to mobilize their family labour for agricultural production. The role of schooling thus varies over time for each rural population and these differences will be examined when we look at the links between fertility trends and social and agricultural strategies.

Initially, children are sent to primary school when parents have surplus cash as a result of their involvement in the cash-crop economy. Later, schooling itself reinforces by planters participation in the spheres of market production. The cost of schooling compels them continually to extend their production of cash-crops. At the same time, as children of school age are no longer working the family land, more outside help is needed and increasing portions of land have to be ceded to the migrants as an enticement to stay.

Later still, as the income generated by export crops falls (either because of ageing shrubs or because of falling sales), schooling of children weighs heavily on the family budget and may even have to compete with the organization of production when recourse to outside labour becomes more difficult. This is not as contradictory as it seems since the ultimate objective of the planters (via their children) and the children themselves is to become integrated into the urban and state spheres of production.

To achieve this, children cease to carry out the work formerly required of them at the level of family production; they withdraw both from family production and more generally from all farm work. Instead, they become dependent on their family while they are at school and later, in many cases, while they wait to find a job in town. The nature, meaning and timing of intergenerational exchanges undergo radical changes that vary according to the time period and the population under consideration as we shall see further on.

The crisis in the cash-crop production system and the effects of structural adjustment programmes

Cash-crop economies experienced their first crisis in 1965-1975, mainly as a result of the fall in production caused by ageing plantations and stagnating world prices which discouraged planters from carrying out the necessary re-planting of shrubs. The current crisis which started in the mid-eighties is of a quite different magnitude. Following a period of active redeployment (1975-1985), during which the regeneration of old plantations and the opening up of new pioneering frontiers occurred concomitantly with rising world prices, most cash-crop economies of sub-Saharan Africa are now faced with recession on two fronts.

The oldest plantations are affected by decaying shrubs, land saturation (socio-economic in nature but also, in some cases ecological), and stagnating productivity levels.

This endogenous crisis has occurred concurrently with the macro-economic crisis which has struck the whole of Africa and affected all cash-crop economies³. In order to tackle this recession, due, at least in part, to the fall in world prices for export crops, the international financial organizations (IMF and World Bank mainly) have imposed "structural adjustment programmes" onto over-indebted states. These programmes pass on to the peasant the fall in the world price for coffee and cocoa and force the village and family communities to pay for part of the operating costs and even part of the capital costs of health and school systems.

In spite of falling incomes families in rural areas must pay for increases in the costs of child-rearing, particularly in terms of school and health care. At the same time, the integration of the educated young into urban areas is becoming more unpredictable and the position of family members established in town more precarious as a result of redundancies and lower wages.

The conditions under which intergenerational flows and family mobility between rural and urban areas function are thereby subjected to radical changes. The effects of this reversal of the former equilibrium can be more particularly measured in terms of child mobility and schooling.

Generally speaking, the mobility of children facilitates balanced fostering between different family cells and the provision of support to those women who, for family or financial reasons, are least able to rear children, either temporarily or permanently. Fostering is one of the mechanisms that sustains high levels of fertility since it allows women to send some of their children to other relatives who are then responsible for educating and

³ The effects of these factors which appeared in the eighties were only observed among populations of the Ivory Coast, since the Dayes surveys date back to 1976-1978, at a time when the economic and demographic contradictions of the cash crop production system, developed on the Plateau at the end of the Second World War but before the start of the general economic crisis that struck sub-Saharan Africa in the following decade, was becoming apparent.

socializing them. In the past, fostering tended mainly to involve children from rural areas being sent to join urban families. Since the crisis, this trend has tended to take the opposite direction: more and more children who can no longer be sent to school or who cannot find a job in urban areas are sent to relatives in the country (Vimard, Guillaume, 1991). At the same time, social stratification is becoming more rigid as a result of integration into a market economy; promotion prospects for individuals and particularly for younger people are thereby restricted.

Investing in the education of their children thus becomes more expensive for parents and the return on the investment more uncertain. The rate of drop outs for social and economic reasons, which is quite marked in some regions, show that, though recent, the model of social promotion through education is changing, as is the role assigned to children in the social reproduction process. The impact of schooling varies according to the phase the cash-crop economy is undergoing.

FERTILITY DIFFERENTIALS ACCORDING TO SOCIO-ECONOMIC POSITION IN CASH-CROP ECONOMIES: the Ewe and the Kabye of the Dayes Plateau

The significance of the elements that shape the structure of economic systems based on the production of cash-crops vary depending on the population and can also be expected to have differing effects at the demographic level. To assess the extent of possible variations, the trend in fertility on the Dayes Plateau in South-West Togo will be studied in two separate communities: the Ewe, an autochthonous group, and the Kabye, who have migrated from the North of the country.

The Ewe were involved in the cocoa plantation economy of the Gold Coast (now Ghana) from the beginning of the twentieth century in a context of labour mobility practices that often led to dual residences; but the Dayes Plateau was only integrated into the cash-crop economy as a production area (mainly coffee) after the Second World War.

The development of the cash-crop economy occurred when the migrant Kabye were brought onto the Plateau. The Ewe, who owned the plantations, began by employing the Kabye as seasonal workers, then took some of them on as share-croppers who gradually settled as they began acquiring land. The social and cultural differences between the indigenous Ewe and the immigrant Kabye stems from their differing economic position in the production structure, the first as land owners and the second as share-croppers (or labourers).

Are these differences reflected at the demographic level and more specifically, do they impinge on fertility levels?

Differences in fertility and contrasts in attitudes

The Kabye, with a total fertility rate at age 50 of 7.58 children, are more fertile than the Ewe with 6.98 children⁴. The timing of fertility also differs between the two groups: the Ewe have their children earlier, and have higher fertility rates until ages 20-24 and a higher cumulated age-specific fertility until age 35. Although Kabye childbearing begins later, intensity is high until age 45 whereas the lower fertility pattern of the Ewe becomes apparent at age 30. The greater marital instability of Ewe couples and the fact that a large number of women in that ethnic group remain single either permanently or for a long time, accounts for a large fraction of the fertility differential in the second half of reproductive life (Table 1).

Table 1
Age-specific fertility rates (per 1000) and cumulated age-specific fertility rates by ethnic group on the Dayes Pateau (1976)

Age groups	Fertility rate		Age	Cumulated fertility rate	
	Ewe	Kabye		Ewe	Kabye
14	12	7			
15-19	170	97	20	0.86	0.49
20-24	310	299	25	2.41	1.99
25-29	312	319	30	3.97	3.58
30-34	269	300	35	5.32	5.08
35-39	193	256	40	6.28	6.36
40-44	104	185	45	6.80	7.29
45-49	35	59	50	6.98	7.58

Having identified these differences in the fertility patterns of the two populations, we now turn to underlying attitudes and behaviours.

We are not claiming that a woman's attitude regarding her own fertility at a given moment in time is indicative of all the decisions she will make during the whole of her reproductive life. On the one hand, an individual's ideal family size can change over time - people do not have a single fixed opinion but rather a succession of attitudes, and opinions that change over time. On the other hand, many reproductive decisions arise as a result of compromise between spouses who may have opposing views or between a couple and their family and social environment (Kellerhals, 1982), such oppositions occurring more frequently and more intensely in times of changing

⁴ The sample consisted of 1,264 women aged 14-59, of which 875 were Ewe, 276 Kabye and 113 were women belonging to very small minority groups, both indigenous and immigrant. The category "all" covers the whole of the sample.

family ideals. Looking at women's attitudes only does not give the whole picture and does not show changes over time nor does it account for all inter-individual relations. The advantage of such an approach however, is that it allows the identification, within each population, of the current "model" which "either consciously or unconsciously, affects actual behaviour" (Bastide *et al*, 1982: 873) and shows, for each population, whether traditional reproductive ideals have persisted, weakened or been abandoned altogether. The differences between the Ewe and the Kabye appear clearly from an analysis of women's opinions regarding their fertility and is reflected in the indicators: refusal to have another child, desired number of children, number of additional children desired (Table 2).

Table 2
Women's reproductive attitudes by ethnic group and by age of woman on the Dayes Plateau (1976)

	Mean number of children desired	Do not want another child (percent)	Mean number of additional children desired
Ewe			
15-29	4.4	3	—
30-39	4.8	23	—
40-49	6.1	56	—
All	5.0	—	2.6
Kabye			
15-29	7.7	3	—
30-39	7.9	4	—
40-49	7.4	22	—
All	7.7	—	4.6

The difference is greatest, exceeding 3 children, for the desired number of children for young women aged 15-29 and 30-39 years: 4.4 and 4.8 children respectively wanted by Ewe women compared to 7.7 and 7.9 by Kabye women. As to the refusal to have an additional child which remains marginal until age 29, it becomes significant from age 30 among Ewe women but not before age 40 among Kabye women. The difference between numbers of additional children desired is also wide: 2.6 children for Ewe women and 4.1 for the Kabye at comparable ages.

These differences between the two ethnic groups are related to the desire expressed by women in the indigenous group for better control of their reproduction so as to postpone childbearing and reduce family size. Few Kabye women express a similar desire to control their fertility. Among Ewe women, 24% want birth intervals greater than 42 months and 56% want no more children after 40 as against only 3% among the migrant group for both these indicators. 32% of Ewe women want access to modern contraceptive methods to limit childbearing; no Kabye woman expressed a similar wish.

These findings indicate that Ewe women have abandoned the traditional ideological framework of fertility patterns. This seems to be related

to the structural elements of market economies previously highlighted as having led to changes in family roles and the function of children. Two factors seem particularly important for the autochthonous population in this regard:

— a change in the meaning of marriage which, although not yet reduced to the mere cohabitation of industrialized countries, has ceased to be an institution sealing the alliance between two families and has become a union between two individuals that is less hampered by norms and custom. Therefore, biological reproduction is no longer a function of the lineage and the need to ensure survival of the village group as was the case previously, but is simply the limited family unit reproducing itself according to strategies inherent to the conjugal cell or to each of its members. The high levels of fertility which were also, according to D. Bonnet's hypothesis (1983, 430) "*une façon d'entretenir cette autonomisation féminine face à la descendance lignagère consécutive à l'alliance*", cease to be essential for women.

— the changing role of children in the indigenous family: from being a producer of agricultural goods the child becomes a consumer and the means by which the family hopes to become integrated into "modern" spheres of activity. Children are no longer an immediate source of capital because of the labour they represent but become a financial burden which can be seen as an investment in terms of the future integration expected and from which parents hope to obtain some financial or material gain in the long or in the short term.

In the long term all these changes become a source of social and familial contradictions, especially when the family-couple retains its productive function intact, contrary to what occurs in groups involved in industrial activities.

Changes in contraceptive and marital practices

Although women's socio-economic position influences their opinions regarding fertility, similar differences are not reflected equally in the types of behaviour that directly determine birth spacing (Table 3).

Mean durations of post-partum abstinence are comparable and fairly high (about 20 months); they constitute the main determinant of birth intervals: abstinence exceeds post-partum amenorrhea in over three-quarters of cases. On the other hand mean duration of breastfeeding is shorter among the Ewe (19.5 months) than among the Kabye (22.8 months), pointing to a very slight weakening of traditional behaviour which, paradoxically, is producing shorter birth intervals⁵.

⁵ Breastfeeding durations on the Dayes Plateau are longer than those observed ten years later for the populations of Ivory Coast with durations close to 15 months (Table 3). Over and above reasons inherent in the situation of the communities considered (breastfeeding durations are traditionally shorter in matrilinear groups, such as the Akye of Ivory Coast), this may reflect a general trend towards shorter durations of breastfeeding in sub-Saharan Africa as a whole.

Table 3

Determinants of birth interval by population: post-partum abstinence, breastfeeding and post-partum amenorrhea (mean duration in months)

	Dayes 1976			Akye 1986	Sassandra 1988
	Ewe	Kabye	All		
Abstinence	21.0	20.0	21.0	9.6	10.1
Breastfeeding	19.5	22.8	20.3	15.0	15.0
Amenorrhea	—	—	14.2	10.9	8.6

Table 4

Percentage of women using a method to encourage or delay pregnancy by region

	Method to	
	Delay	Encourage
Dayes, 1976		
Users at time of survey		
Ewe	23	—
Kabye	3	—
Akye Country, 1986		
Women not currently pregnant	9	24
Women not pregnant for 5 years	5	16
Users before current pregnancy	1	7
Users since last pregnancy	1	5
Users between last 2 pregnancies	1	4
Sassandra, 1988		
Users at time of survey	2	4

Use of contraceptives varies considerably between ethnic groups: 23% of women are users among the Ewe but only 3% among the Kabye (Table 4). The rhythm method, which requires sexual abstinence on some days of the menstrual cycle, is practically the only method used by a significant proportion of Ewe women (21%) and by a very small minority of Kabye women (3%). Over and above distinctions in attitudes regarding ideal family size, the difference in numbers using the rhythm method, taught by health workers, is also explained by the greater attendance of health centres by the indigenous groups, pointing to cultural differences between the two groups.

There are also broad divergencies in marital behaviour that have decisive repercussions on fertility differentials. The development of cash-crop

economies and the economic crisis affecting these populations has led, particularly among the Ewe, to an increase in the age at first marriage and has weakened cohesion between couples. Ewe women marry later; in the age group 20-24, 19% of women are still single as against only 4% among Kabye women. Similarly, marital instability is greater, and there are twice as many divorced women who live alone or with their family of origin, among the Ewe than among the Kabye. These diverging trends between marital systems leads to a weakening of the social potential for biological reproduction among indigenous women where only 67% of women of reproductive age are in a union, compared to 86% among the Kabye. Strong marital cohesion among the Kabye can be contrasted with the destructuring of conjugal ties among the Ewe which has undermined their high fertility ideal and contributed to smaller family sizes.

Of course, the weakening of conjugal ties is not the results of a desire for fewer children. On the contrary, it is the loss of marital cohesion over time and also in space (prolonged absences occur frequently), which contributes to the desire of indigenous women for fewer children: their increased participation in the education of children, both in social and in economic terms, modifies perceptions of the cost of children and of the burden that children are likely, henceforth, to represent.

As yet, the old behaviour patterns directly associated with biological reproduction have not changed significantly in the different populations. But marital and social structures (couples, the lineage) as well as traditional ideological norms regarding fertility are being eroded in the indigenous ethnic group. Biological reproduction has changed somewhat as a result and its meaning for society has altered.

INCREASES IN SCHOOLING, URBAN INTEGRATION AND LIMITED DECLINE IN FERTILITY IN THE AKYE REGION (South-East Ivory Coast)

Studying a specific, matrilinear, population that reproduces in a given geographical and historical context may be helpful in identifying other factors that lead to changes in fertility in cash-crop economies. The villages of Memni and Montezo that concern us here are situated in Akye country some fifty kilometers East of Abidjan⁶. They belong to the old pioneering region of the Ivory Coast export crop economy, founded on the cultivation of coffee and cocoa, but also to the peri-urban zone of Abidjan, the capital.

⁶ Data on the Akye country and on the Sassandra region were collected between 1985 and 1991 in the framework of a research programme on "Population dynamics in the Ivory Coast" carried out jointly by the Ecole Nationale de Statistique et d'Economie Appliquée in Abidjan and by ORSTOM.

It is worth noting that the survey in Ivory Coast was conducted ten years after the Dayes survey and that the country was in the throes of a drastic economic crisis and structural adjustment programme. The difference in conditions may partly account for the divergencies found between the Togolese populations on the one hand and those of the Ivory Coast on the other and readers should be cautioned against making any detailed comparisons between the two data sets.

These villages have been a part of village cash-crops production system from the beginning. The system provides the social structure for the forest zone of Ivory Coast in the southern half of the country (Chauveau and Dozon, 1985). A cash-crop economy developed there without notable recourse to a migrant labour force, contrary to what happened in many other regions where cash-crops were cultivated (in Dayes and Sassandra in particular). The Akye of this region are traditionally hostile to strangers settling in their villages and on their land. At the very outset, at the time when the cash-crop economy was instituted, population density was quite high and labour was plentiful both in the family and in the village⁷.

With the growth of the Abidjan metropolis both spatially and functionally and the integration of their educated elites into urban activities, the populations of these villages became increasingly involved in the spheres of town and State activity while continuing to belong to the rural world. This is how bi-polar family and social networks evolved: goods and people circulated between town and country, urban and rural activities interacted and the cultural models of traditional society and of the western world came into contact.

However, following a period of great prosperity when plantations, in their prime being produced, big harvests and world prices were buoyant, the region has, for some years now and together with the whole of eastern Côte d'Ivoire, experienced a crisis caused, on the one hand by the inability of the production system to adapt to new conditions and, particularly, to saturation of the land, and on the other by the collapse in export crop sales.

How has fertility evolved in such a context of social change, particularly affected by the spread of education and by contrasting economic change?

The resistible spread of education

Schooling has had a considerable impact on the mentality and the behaviour of young people in Côte d'Ivoire, particularly in terms of professional aspirations: the educated young turn to administrative jobs which are considered to be modern and well paid, and for which school has trained them. Schools, founded by early Christian missionaries, have long been a feature of Akye society, and have been a major influence in the transformation of society to a greater degree even than on the Dayes Plateau. The educated young tended to migrate to town to look for jobs and a significant proportion of the more highly educated obtained jobs at the higher echelons of state administration and in the management of public sector undertakings. Heads of households developed strategies whereby they educated their children for as long as possible, considering this in the light of an investment, which,

⁷ In the eighties for instance, 86% of village populations were Akye (of the lagoon Akan group); immigrants (14%) were mainly engaged in trade and cottage industry, and not in agriculture. Proportions of immigrants were 25% for Dayes and 75% for Sassandra.

though long term and of uncertain yield, seemed fully justified as family cohesion was still strong, plantations still yielded profitable incomes and good urban jobs were still to be had.

A few years ago conditions changed and the situation is now quite different: villagers are confronted with an internal crisis caused by land saturation and an external crisis linked to the financial difficulties affecting cash-crop economies (Cf. p. 198). Ensuring that children attain the highest educational level possible is now very difficult: planters' income has dropped and the overall cost of schooling constitutes one of their biggest items of expenditure, representing in some cases, up to 50% of their budget⁸. Moreover, jobs are much scarcer and access to the higher echelon jobs out of reach of most new-comers to the market because of the more rigid stratification of society.

A limited decline in fertility in a context of economic crisis

Among the Akye of Memni and Montezo, attitudes to demographic behaviour are changing as a result of increasing land saturation and economic problems and have experienced two successive phases. At the beginning of the seventies, the expansion of plantations had reached its limit and the need for abundant family labour had dwindled. However, planters still had high incomes and wanted as many of their children as possible to be educated in order to increase their chances of obtaining a job in the state administration and of being successful in town. For many planters this replaced the demand for a large labour force and thus the desire for large families persisted, although founded on different economic and social strategies from those of the traditional agricultural societies⁹.

In the present period the situation has changed radically, both at the local and at the national level: land saturation is more acute, cultivation techniques are still primitive, income from plantations is falling and the supply of urban jobs has practically disappeared. Moreover, as on the Dayes Plateau, intergenerational flows are changing direction: transfers from parents to children are more costly and last longer (cost of health care, increased schooling...) and transfers from children to their parents are increasingly unreliable because those who have migrated to town are having difficulty finding jobs and also because the social control of the young by the older generation is weakening. Some of the economic reasons which had, until now, justified or supported high fertility patterns, are losing ground. The acute crisis of 1989-1990 (the consequences of which could not be evaluated at the time of the survey), by drastically limiting the cash

⁸ In 1986 for example, 19% of children aged 6 to 14 and 39% of children aged 14 to 19 did not attend school. The study by C. Faussey-Domalain (forthcoming) is worth reading on this subject.

⁹ During this period all the elements required for an increase in the survival of children were probably present. Indeed, the development of the plantation economy led to an increase in the level of education and to an improvement in the health care infrastructure thereby creating the conditions necessary for a decline in mortality particularly among infants, as was observed in Dayes and in Memni-Montezo and in Sassandra (Cf. V.1.).

ressources of planters, must have contributed further to the disappearance of the old economic system of reference.

Period fertility had indeed declined during the sixties and seventies but the decline remained fairly weak as can be observed from trends in cumulated period fertility rates from 1964 to 1979¹⁰ (Table 5). The high natural increase characteristic of traditional societies was hardly affected in the seventies and eighties. In 1986, lifetime fertility of women exceeded 7 children and the annual growth rate was 3.4 % (Guillaume, 1988).

Table 5
Cumulated period fertility at different ages by year and by region

Years	Age last birthday						
	20	25	30	35	40	45	50
Dayes							
around 1955	0.86	2.32	3.92	5.22			
around 1960	1.10	2.61	4.15	5.69	6.76		
around 1965	0.83	2.67	4.30	5.76	6.95	7.66	
around 1970	0.66	2.27	3.79	4.98	5.92	6.47	6.69
around 1975	0.43 ¹	1.71 ¹	3.22 ¹	4.35 ¹	5.06 ¹	5.56 ¹	5.74 ¹
Akye country							
around 1964	1.01	2.67	4.24				
around 1969	0.95	2.50	4.02	5.34			
around 1974	0.95	2.47	4.00	5.21	6.27		
around 1979	0.92	2.40	3.73	4.97	5.74	6.13	
around 1984	0.98 ¹	2.79 ¹	4.28 ¹	5.54 ¹	6.35 ¹	6.77 ¹	6.84 ¹
Sassandra							
around 1966	0.81	2.12	3.45				
around 1971	0.76	2.11	3.58	4.64			
around 1976	0.84	2.19	3.58	4.99	5.76		
around 1981	0.95	2.54	4.04	5.31	6.47	7.13	
around 1986	0.85 ¹	2.34 ¹	3.91 ¹	5.39 ¹	6.25 ¹	6.78 ¹	7.06 ¹

¹ Estimated cumulated fertility.

What causes the persistence of high fertility when some of the main economic reasons justifying it have disappeared ? As T. Locoh points out (1986, 221) this is a situation that frequently occurs in developing societies: high fertility ceasing to be a "rational choice" in spite of the fact that "the norms, the institutions that make it possible" remain in place. One of the reasons must be the unavailability of modern methods of contraception. In this area traditional behaviours persist (breastfeeding, post-partum abstinence...) but are directed more at achieving the length of birth intervals necessary for the survival of children than for the sole purpose of limiting births. At a more fundamental level though, the traditional ideals of the Akye, who favour high rates of demographic growth, seem to persist among

¹⁰ The sample for this fertility survey was 1208 women aged 15-49. Period rates estimated for 1984 seemed to indicate a rise in fertility although it was not possible to check this.

male heads of household, but also among women; and this is a matrilinear system in which collective survival of the lineage depends on the fertility of its women¹¹. The strength of this high fertility ideal transpires from our interviews with Akye women when compared to the responses obtained from Ewe women on the Dayes Plateau, many of whom favour smaller families.

Women's behaviour proves that they persist in wanting high levels of fertility. Contraceptive use remains very low and restricted to a small group of women since, depending on their position in the fertility cycle, between 1% and 9% of women use methods to postpone childbearing (Table 4). Users of modern methods are mainly young women under 25 years who have not yet had a pregnancy (9%), women whose last pregnancy was some time ago (4% when the pregnancy was more than 5 years ago), or women at the end of their reproductive years who have completed their families: 64 % of users are over 40 and 50 % have had more than 6 children. The methods used are mainly the traditional methods: knowledge of modern methods is very low. This lack of knowledge is due to the poor dissemination of information on contraceptives in Côte d'Ivoire: the Association for Family Welfare (Association pour le Bien-Etre Familial, AIBEF) does produce some information about family planning but, for the present, its action remains confined to a few urban centres.

Women's desire for the maintenance of high fertility levels is corroborated by their replies to questions on the use of methods to encourage pregnancies. As for use of contraceptive methods, use depends on the stage reached in the reproductive cycle: it is high among women who have not yet had a pregnancy (24%), lower among women whose last pregnancy was at least five years ago (16%) but high among women who have few children (44% of users among women who have 3 children or fewer and only 4% among women who have more than 3 children). These methods are mainly based on traditional pharmacopoeia but the Memni health centre organizes a weekly sterility clinic, which is indicative of the importance of fertility in Akye society.

Post-partum abstinence is still practiced but for shorter periods. Traditionally, sexual abstinence was observed until the child began to walk, but is now much shorter. Duration is about 10 months (9.6 months on average) and is lower than the duration of amenorrhea (about 10.9 months) (Table 3). Moreover, there is a tendency for ever shorter durations of post-partum abstinence among younger cohorts: 9.2 months for women under 30 compared with 10.1 months for those over 30.

The fertility behaviour of women: lack of effective contraception, shorter lengths of post-partum abstinence (now shorter than the amenorrheic

¹¹ On the subject of other Akan societies of South-East Ivory Coast, the Anyi and the Eotile, C.H. Perrot (*op. cit.*) shows how the "specificities of the (matrilinear) system make the increase in lineage members an imperious necessity" and "the survival of the lineage depends on the capacity of its women to reproduce"; their reproductive capacity being "used to the full" (with, notably, great latitude as to the choice of partner); the shorter duration of post-partum abstinence among the matrilinear societies of western Africa compared to patrilinear societies (Caldwell, 1991, 5), may arise for the same reason.

period), contributes to the persistence of high levels of fertility. It reveals the desire of women for large families as seen in the survey: of those who had not yet had a live birth practically all said that they wanted children (95%). The reasons most often given for wanting many children were love of children and wanting help. Women who say they want no more children are mainly older women reaching the end of their reproductive life and whose last pregnancy took place at least 5 years ago (66% do not want an additional child in this group); the reasons stated are in fact mainly the age of the mother (51%), health problems (22%) or too great an age difference between children (8 %). Economic difficulties are mentioned least often (5%), indicating that, in 1986, the crisis had not yet affected women's aspirations.

At the present time, the economic context, which determines how Akye village society develops both within its own system of village reproduction and within the framework of close ties linking it to town and state spheres, is unfavourable and should contribute to a lowering of fertility levels. In fact, however, changes in the material context of demographic reproduction have not yet modified the "traditional" ideological framework of fertility which pertains to the cultural and also to the religious spheres (Caldwell and Caldwell, 1987).

These two aspects do not evolve at the same rate: the one fluctuates with the economic cycle and the other can only change radically over a much longer period of time and has only just begun its metamorphosis.

PIONEER FRONTS AND THE RISE IN FERTILITY IN SOUTH-WEST COTE D'IVOIRE

The Sassandra area, in South-West Ivory Coast, differs from the other two areas in having joined the cash-crop production system much more recently and by the youth and great diversity of the populations settled there. Only 25% of residents are indigenous to the sub-prefecture, 25% are migrants from other regions of Ivory Coast and 50% are of foreign stock. This area is one of the last pioneering frontiers of the West African cash-crop economy and highly heterogeneous groups from all over the sub-region have settled here, attracted by complexes of uncultivated forestland, agro-industrial complexes and opportunities for crop diversification (coffee, cocoa, palm oil, citrus fruits, food crops).

From rising fertility levels, associated with high fertility attitudes in women...

From 1966 to 1981 cumulated period fertility (Table 5) shows a progressive and clear rise in fertility¹² arising from both an increase in the

¹² The sample for the 1988 fertility survey was 1084 women.

intensity of period fertility at each age group and earlier timing of childbearing.

Whatever a woman's age, the number of children she had in the eighties was greater than that of women in previous years, both in terms of period and cohort fertility. At age 35, for instance, cumulated age-specific fertility is 5.31 children in 1981, compared to 4.64 ten years earlier. As for the cumulated fertility of the 1939-1944 birth cohorts, it is 4.12 children at age 35 and 4.81 children for the 1949-1954 birth cohorts at the same age (Guillaume, Vimard, 1991); representing an increase of 0.7 children over a ten-year period.

Such high and rising levels of fertility (in the order of 7 children per woman at age 50) are characteristic of a population mainly engaged in agricultural production. Low school enrollment rates for children is a telling indicator: of children 5 to 19 years, one out of two attends school and one out of three is involved in productive activities. At age 15-19 years, 57% of boys are involved in productive work (mainly agricultural); this is also true for 45% of girls but they mainly work in trading activities. This clear involvement of children in productive activities is more frequent among the direct descendants of heads of household (45% of whom have a job as against 37% for all children) who are more easily oriented towards productive activities as they are under the direct supervision of the head of household.

High fertility levels are also consistent with the attitudes of women who state that they want many children: 75% want more children than they have at present, 7% consider that their present number of children is the ideal number, 13% would have preferred fewer children and 5% have no clear opinion.

As in the case of the Akye women, women's attitudes in the South-West point to a desire for large families and this is reflected in their reproductive behaviour (Table 3).

Post-partum abstinence is still observed (mean duration calculated at the last closed birth interval is 10.1 months), but is decreasing: young women under 30 observe shorter abstinence periods than older women (9.7 months instead of 10.7 months). Duration of abstinence is slightly longer than duration of the amenorrheic period which lasts 8.6 months on average (8.2 for young women and 9.1 for older women). Average duration of breastfeeding is 15 months.

The gradual abandoning of traditional birth spacing methods, seldom replaced by other contraceptive methods, thus contributes to the high levels of fertility¹³. As in Akye country, few women in South-West Ivory Coast are users of contraceptives (Table 4). Only 2 % say that they use a method: users mainly tend to be women who have not yet had a live birth or who have large families (7 or more children). On the other hand, use of methods

¹³ The gradual abandoning of traditional birth spacing methods produces shorter birth intervals and can conceal the emergence of attitudes favourable to lower fertility.

to encourage pregnancy is higher (4% for all women, 7 % among women who have not yet borne a child). Reasons given by women to justify the desire for more children than they have at present are mainly: "to increase the size of the family" (46%), "love of children" (21%), and "to have help" (19%). Those who do not want more children refer to economic hardship as preventing them from having more children.

In fact, a variety of factors contribute to these high fertility levels: short periods of post-partum abstinence and amenorrhea, low use of contraception. However, if women could truly control their fertility, it is conceivable that some would have fewer children since 13% of women would have preferred a smaller family size than they have at present. The youngest women are in fact those who most want to control their fertility: over 2/3 of users of methods, either to encourage or to delay pregnancy, are under 30.

...to socio-economic differentials in fertility behaviour

The rise in fertility and the high level observed in the population as a whole conceals deep divergencies between the fertility attitudes and behaviour of socio-economic groups¹⁴. The total fertility rate for married male heads of household under 70 is twice as high among the "foreigners-farmers" (14.40 children) than among the "Ivory Coast nationals - other employed" (7.04 children). Other groups are at intermediate levels: the fertility rate is relatively high among the "foreigners-other employed" and the "Ivory Coast nationals-farmers" (slightly above 12 children) and lower among the "agricultural labourers" with 8.26 children. Taking all male heads of household under 70 both married and unmarried, differences still range between 1 and 2 and the ranking between groups remains the same with the exception of "agricultural labourers" who, in this instance, have the lowest fertility rate since they are more often single than men in other groups (Table 6).

Generally speaking, the level of fertility among married men is linked to type of activity (farmers are more fertile than other active groups) as much as to nationality (foreigners are more fertile than Ivory Coast nationals).

Fertility differentials among socio-economic groups are also apparent from looking at numbers of children among married women, although the ranking between groups is slightly different from that between men's groups. The total fertility rate varies between 10.20 births among "foreigners-other employed" to 6.25 among "agricultural labourers". The other groups fit

¹⁴ Families were grouped into five socio-economic categories. These categories were defined according to economic activity of the head of household, his status and his nationality (Ivory Coast or foreign). For economic activity we distinguished between agricultural and non-agricultural work, and, in the agricultural sector, self-employed workers were distinguished from salaried workers. The categories were: "Ivory Coast farmers" and "foreign farmers", both self-employed, "Ivory Coast-other employed" and "foreigners-other employed" grouping all those working in cottage industries, trade and salaried jobs with the exception of agricultural labourers. This last category was mainly composed of workers in an agro-industrial complex, mainly of Burkina Faso origin. These categories applied to heads of household (894 heads of household under 70 of which 745 were married and 149 were single), and their spouses (730 out of the 1,440 women aged 15-49 who were interviewed) in the 1991 survey.

Table 6

Total fertility rate for male heads of household aged 30-69 and for ever-married women aged 15-49 by socio-economic group in Sassandra (1991)

	Men		Women
	Married	All	
Ivory coast farmer	12.12	10.86	7.89
Ivory coast other employed	7.04	6.46	7.35
Foreigner farmer	14.40	12.21	9.23
Foreigner other employed	12.39	9.63	10.20
Agricultural labourer	8.26	6.05	6.25
All	11.26	9.49	8.39

in between these two extremes, higher for the "foreigners-farmers" (9.23 children) than for "Ivory Coast nationals-farmers" (7.89 children) and "Ivory Coast nationals-other employed" (7.35 children). The fertility of foreign women is clearly higher than that of Ivory Coast women, with a difference of more than 2 children.

Comparing both male and female fertility rates highlights the low fertility of "Ivory Coast nationals-other employed" and "agricultural labourers" relative to other groups. The two groups have both already entered the first stage of the fertility transition in spite of great sociological and economical dissimilarities.

The trend towards rising fertility levels, apparent at the aggregate level, is thus not homogeneous and neither does it apply to all the socio-economic groups considered. These differences arise out of attitudes to fertility that vary from one sub-population to another and from one sex to another as is shown by the numbers who would prefer to limit their fertility¹⁵.

The groups most directly involved in agricultural production on this pioneering frontier – the Ivory Coast farmers, and even more so, foreign planters – for whom disposing of as much family labour as possible is an economic necessity, are those whose fertility is highest and who persist in their pro-natalist attitudes: they express the desire for many children, justify it in terms of labour needs and have little recourse to contraceptives¹⁶. On the other hand, in the same sector of activity, as soon as a person's economic status changes and he becomes an employee, attitudes and behaviours more favourable to limiting lifetime fertility emerge. The groups involved

¹⁵ If we take the proportion of men who want fewer than four additional children as an indicator of preference for lower fertility there is a clear difference between "Ivory-Coast-other employed" and "foreign-farmers" (with, respectively, 62% and 22% in each category). The other groups hold intermediate positions. In the population as a whole, 37% of heads of household and 59% of their spouses want fewer than four additional children; proportions wanting no more children are 13% and 18% respectively.

¹⁶ Among married women, proportions using contraceptive methods are 1% only in the "foreign-farmers" group and 2% in the "Ivory Coast-farmers"; proportions are higher among the "agricultural labourers" (3%), "foreigners-other employed" (5%) and "Ivory Coast-other employed" (7%).

in secondary and tertiary sectors of activity also tend to greater control of fertility and greater use of modern contraceptive methods.

Generally speaking, fertility trends and family planning in Sassandra are characterized by a number of paradoxes. Fertility is increasing noticeably but a large minority in the population favours smaller family sizes. A number of individuals have expressed a desire for information on modern contraceptive methods but traditional birth spacing practices are gradually being abandoned. Self-employed farmers are the most affected by the current economic crisis but it is those communities that are engaged in secondary or tertiary activities or who are partly protected by their employee status who are adopting attitudes and practices that will lower their fertility... Over and above the persistence of traditional ideals of high fertility, the economic crisis which alters the perception parents have of the true cost of rearing children, a new desire to limit and to reduce childbearing is indeed emerging. This change in attitude affects individuals in all socio-economic groups but is more perceptible in certain communities. The forces at work in demographic reproduction are changing and becoming less rigid and in this context the gap between practices and ideals, between social groups and between individuals is increasing. It is this discrepancy that we shall now attempt to describe more closely for the populations covered in this article.

THE APPEARANCE OF NEW CONSTRAINTS AND OF NEW DEMOGRAPHIC IDEALS

The appearance of new demographic constraints

The decline in mortality, particularly in infant and child mortality, is the most notable demographic change that has occurred in conjunction with the growth of cash-crop economies¹⁷. The decline is particularly marked among autochthonous populations who, having been the first to benefit from the establishment of health centres and from high levels of schooling are more likely to attend clinics (during pre- and post-natal periods, for childbirth, during vaccination campaigns...) and have thus benefited more from the development of such infrastructure. The decline in childhood mortality also indicates that new therapeutic practices have been adopted and are bringing about new transformations. As the risk of dying lessens, emotional and economic investment in children becomes more worthwhile and parents begin to look for greater "quality" (through more years of schooling and better health in particular), rather than just insisting on quantity of children.

¹⁷ In Dayes for instance, the probability of dying before age one drops from 112 to 63 per thousand between the 1950-1959 birth cohorts and the 1970-1974 birth cohorts. The fall is also apparent in Memni-Montezo where mortality falls from 85 per thousand (for the 1960-1964 birth cohorts) to 48 per thousand (for the 1980-1984 birth cohorts), and in Sassandra where infant mortality drops from 121 per thousand (1954-1961 birth cohorts) to 87 per thousand (for the 1982-1986 birth cohorts).

Another consequence of the decline in mortality is a rejuvenation of demographic structures as well as population growth. This in turn affects the demographic conditions that determine the pattern of social relations in the family and between families. New sources of constraints and dysfunction arise: increases in the burden of caring for young people, greater longevity of the elderly, later transmission of economic and political power... The demographic cycle of the domestic unit is affected by the prolonged survival of the father and the increased number of children surviving into adulthood. This is particularly true of the indigenous societies, both Ewe and Akye, for whom the decline in mortality has been considerable. These obstructions further weaken the traditional prerogatives of elders and encourage the emergence of new demographic ideals in biological families now less dependent on their lineage.

The emergence of new demographic ideals

As the development of cash-crops gradually destabilized the organization of production by the lineage and recentered social and demographic reproduction onto the domestic group, the process of rural exodus among indigenous populations¹⁸ was exacerbated by school education. Moreover, the income generated by export crops soon altered the reproductive strategies of the first planters by giving them access, initially to the spheres of colonial power, and later to national power. These members of the elite encouraged the adoption of new forms of social reproduction centered on the biological family and based on a desire for integration into urban life: such strategies are perceptible among the Ewe of Togo and more visible still among the Akye of Côte d'Ivoire¹⁹.

Such strategies assign new roles to the members of the conjugal family, lead to a transformation of exchanges and social relations between husbands and wives, between parents and children, and promote the constitution of new demographic ideals. However, the views of indigenous Ewe and Akye men and women differ on these ideals of physical reproduction. Although children are seen by both sexes as a burden to be shouldered, men believe that their children will be of more assistance if they join the channels of administration or non-agricultural production sectors. They also come to realize that they can no longer control their child's career as did their fathers and that any assistance they may receive in return in the long term becomes more unpredictable. In spite of this, the desire to promote the family by educating their children remains one of the main reasons for men's favourable attitudes to high fertility. The mental construct and the

¹⁸ Possible, for most populations, with recruitment of manpower from outside the village.

¹⁹ Urban integration of the Ewe of Dayes, mainly in Lomé, capital of Togo and 150 kms away, is still less pronounced than that of the Akye who live 50 kms away from Abidjan, capital of Ivory Coast; there is less trade and movement of people between town and country in the case of the Ewe as Lomé is further away and economically and demographically less dynamic, and therefore less attractive, than Abidjan, and the Dayes Plateau developed its plantation economy at a later date.

nature of this ideal is different from the earlier ideal and the nature and yet the expression of it remains the same: the desire for a large family.

As for the position of women, there is a difference between the Ewe and the Akye. Ewe women tend to express their demographic ideals in much more immediate terms. Being separated from their spouse generates a desire to limit the size of the family and effectively contributes to achieving this goal, but of particular note is that they refer more and more seldom to children as "gifts of God". In the same way as the individualization of the new fertility ideals, this abandoning of a traditional ideological point of reference, shows the extent of the elders' loss of control over reproductive matters. The position of Akye women in the face of economic difficulties is different from that of the Ewe. As they cannot rely on imported labour they need help from family members in producing food crops and tending the plantations. On the other hand, as the family networks they belong to have extended into urban areas, they can ask for help from wealthier relatives living in town or in richer plantation areas. Such assistance is either financial or an offer of child-fostering. Akye women therefore need more children than Ewe women but they also need greater resources to bring them up or to foster them out temporarily. Their fertility ideals do not evolve under the same constraints or in the same terms as those of the Ewe women although they too are affected by the crisis.

The constitution of new demographic ideals is expressed differently among the Ewe and the Kabye, the latter being more involved in traditional forms of reproduction. Ideals of high fertility persist among the Kabye in spite of the fact that the head of the domestic group now controls both adult and child members²⁰. Fertility continues to be thought of in terms of the reproduction of labour and labour remains at the service of the agricultural work carried out by the domestic unit.

The place of children differs from one population to another and the demographic ideals of the Ewe and the Kabye diverge as a result of this difference²¹. Furthermore, the difference in the position occupied by children in the Ewe and Kabye processes of social reproduction on the Dayes Plateau also applies to women. Differences in status in terms of production and divergencies in conjugal mobility point, here again, to a differentiation in female roles in the reproductive process.

However, the first signs of stratification are apparent in the Kabye community, shown by the acquisition by the first-comers, of ownership of their plantation and integration of the more active members into new, co-operative, forms of farming. Schooling has also increased among the children of the first wave of immigrants who are now land-owners. Family labour can therefore be expected to escape to other spheres of production

²⁰ For the Kabye, it is the distance from their region and lineage of origin that leads to this take-over by the head of the domestic group of agricultural production and demographic reproduction.

²¹ Differing school structures in each population testify to these two separate forms of social reproduction. Proportions of children aged 6-14 enrolled in school are 89, 80 and 85% for boys, girls, and all, respectively, among the Ewe, and 50, 34 and 42% for the Kabye, showing a school enrollment rate that is twice as high among the autochthonous group.

at some stage, and new social strategies will then appear which will no longer necessarily require large families.

As for the populations employed in agricultural production in Sassandra, their main strategy is essentially agrarian in nature, directed at extending their cash-crops and making reference to fertility ideals similar to those of the Kabye, with large numbers of children so as to ensure a plentiful supply of family labour. Although the current crisis has not yet altered this approach in a substantive way, some families are now expressing more restrictive opinions regarding high fertility. In agricultural communities, approximately 20% of men and 30% of women want fewer than 7 children, the economic crisis being the main reason given for wishing to limit family size (high cost of living, difficulty in giving children enough to eat...). What is apparent here are, as among the Kabye, the seeds of future change; changes that the other socio-economic groups in Sassandra, agricultural labourers and employees in the secondary and tertiary sectors of activity, have already embarked upon.

Indeed, in spite of high and increasing overall levels in fertility in this area, ideals favourable to lower levels are beginning to make their appearance. The reasons for such changes and for the extension of the phenomenon are still unclear. Neither do we know whether this will lead to real changes in behaviour in the long term, either in Sassandra or in other African regions. The crisis affecting African countries and particularly cash-crop producing regions is leading to considerable socio-economic problems making it especially difficult to bring up large families; in fact this is the argument most often put forward for restricting fertility. The redistribution of children within the extended family which allowed the nuclear family to free itself from the costs incurred by having large numbers of children, particularly the cost of schooling, is something families can no longer resort to to the same extent as in the past as economic difficulties strike other production sectors as well and urban families are similarly affected.

The desire for smaller families expressed in the interviews is not linked exclusively to the current cyclical crisis (which is also in fact a structural crisis) but also reflects a much deeper change in mentalities as can be deduced from the attitudes and behaviour of the younger generations²² and the socio-economic groups working in "modern" activities or having a "modern" status. However, the erosion of traditional birth spacing practices may well have the opposite effect for a time and delay, or at least prevent, a decline in fertility levels if individuals who so desire cannot have recourse to modern contraceptive methods. Effective recourse to such methods is dependent on their availability. But economic problems and the implementation of "structural adjustment programmes" have increased the problems of operating the health care system and made access to family planning methods more difficult, especially in land-locked areas such as Sassandra.

²² Both in Akye country and in Sassandra young women are more prone than older women to want to achieve personal control over their fertility and are probably less sensitive to social pressure and to behavioural stereotypes: they more frequently use methods to encourage or to delay pregnancy and they shorten durations of breastfeeding and abstinence.

These differences or contradictions in fertility ideals as just described for plantation regions are not limited to such areas and further examples can be found in rural areas geared to other types of cash-crop production and also among urban populations.

Among the Moba and the Gurma in North Togo, geared to cotton production for example, fertility levels are increasing, with an average of 8 children per woman as a result of the lowering in age at marriage and the weakening of traditional rules regulating post-partum abstinence (Rey, 1989). Paradoxically, this rise has occurred at the same time as control of fertility has been transferred from the lineage to the family nucleus. Such fertility is then dependent on parents' expectations, based on the need for child labour when working the land. Women in particular expect children to assist them in farm work as their own work load increases as a result of having to help in tending cash-crops and being made increasingly responsible for the production of food crops.

This situation would seem to support the desire for large families but, paradoxically, this may just be a temporary phenomenon since the demographic pressure thus created may reach breaking point. The land shortage implied by the reduction in the practice of leaving land fallow and in rising school enrollment rates for younger children should lead, on the one hand to a re-evaluation of the true cost of children in Moba-Gurma country, and on the other, to an agricultural crisis which will undermine the need for large families.

The calling into question of the material environment of demographic reproduction is different for urban Moba-Gurma populations: young women in Lomé, in their attempt at finding jobs in the non-agricultural production sector become apprentices and delay marriage (thereby postponing age at first birth); most (85%) of children are sent to school instead of being found a job (Agounke, Levi, Pilon, 1991). The cost-benefit ratio of children is encouraging parents to have fewer children. Fertility is falling even if the fall is still limited (with a lifetime fertility of about 7 children) and women are beginning to use birth control methods (16% of women aged 15-49 have used a modern contraceptive) testifying to a change in fertility ideals.

CONCLUSION

Moving towards diversity and differential timing in fertility transitions in Africa

Human reproduction is a complex phenomenon and the fertility of a population will differ depending on that population's genetic and cultural background and also on socio-economic factors that directly and diversely affect its development. Our analysis of fertility in a number of West African populations involved in cash-crop economies has shown the extent to which factors common to all these populations (autonomy of the domestic group,

schooling, socio-economic difficulties...) can affect each population differently and more or less strongly depending on circumstance.

The cash-crop production system has thus had a diverging effect on fertility trends depending on a) the change in the role attributed to children in the reproduction process, b) changes in the material conditions of child-rearing, c) changes in the economic and social strategies adopted by each population. Inter-play between these dynamic factors has depended on the place occupied by each community in the history of the cash-crop economy and has led to singular patterns of development in the fertility model of each population considered.

Furthermore, the diversity of the links between fertility ideals and strategies of social reproduction has become apparent. A desire for large families can thus result from a strategy aimed at merely reproducing an agricultural society (as in the case of the Kabye of the Dayes Plateau or of the agricultural populations of Sassandra) or, on the contrary, arise out of an extension of family networks to spheres of urban and state activity (such as for the Ewe of Dayes, and the Akye of South-East Ivory Coast during the period of economic growth) resulting in children being either put to work in the fields or sent to school. A population can, indeed, retain attitudes favourable to high fertility as long as it can continue to bear the costs of educating children whom it hopes will then find employment in town and produce benefits in the long run. In such cases the head of household will want many children since "the more children he has the more likely it is that one of them will succeed".

Recently, however, the economic crisis has tended to increase the cost of children relative to the income generated by plantations and has led to pressure to reduce family size among some communities. This has happened among the Ewe on the Dayes Plateau and is beginning to occur among the Akye of the Ivory Coast. However, actual translation into observed fertility rates may not be immediate since a) the desire for large families is not something that can be overturned in the short term, b) the supply of modern contraceptives is particularly poor in these French-speaking African countries, c) traditional birth spacing practices (abstinence and breastfeeding via the effect of amenorrhea) are gradually being abandoned.

However, these elements can in fact conceal the emergence of new, lower, fertility ideals; we have seen that fertility has fallen in populations involved in different sectors of production. Initially, the calling into question of traditional fertility attitudes and behaviour is linked to the weakening of social control over fertility resulting from a more general loss of power by the lineage in sub-Saharan Africa and to the emergence of new aspirations resulting in more autonomous individuals and nuclear families. This search is being given greater prominence by the current economic and social crisis which has increased the cost of children and has made many families' situation precarious.

With the crisis then, societies in sub-Saharan Africa seem to have reached a juncture of great uncertainty where the conditions necessary for the

emergence of new ideals in terms of demographic reproduction are growing: the land, in some cases, no longer provides an adequate income and young people are less and less prepared to go into farming; integration into urban and state spheres of activity is daily becoming more problematic; equalization, from one domestic group to another, between producers and consumers, between income and costs of educating children, is more difficult than before. So that changes in the rationale for large families and the social practices that made them possible, should produce new attitudes in terms of demographic reproduction in the years to come which should encourage fertility transitions, diverse both as to their content and their timing.

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Abstract

The article analyses the effects of cash-crop production systems on fertility models in West Africa. Among the rural populations integrated into the market economy, changes in fertility are determined by a) the transformation of the roles assigned to children in the social reproduction processes, b) changes in the material conditions in which these children are reared, c) changes in economic and social strategies. For each community, interaction between each of these dynamic factors occurs under different conditions, according to that group's position in the history of the cash-crop economy, and results in a unique mutation of its fertility model. In particular, the variety of links between social reproduction strategies and the ideal of high fertility is to be noted: the ideal can result from strategies aimed at simply reproducing agricultural society or at extending family networks into urban and state spheres, thereby determining whether children will work the land or attend school. As to the ideal of smaller families and the questioning of attitudes and behaviour underlying high fertility, initially associated with the weakening of social control by the lineage over demographic reproduction, they are now buttressed by the social and economic crisis which has increased the cost of children and made the position of families precarious. The present crisis seems to place the societies of sub-Saharan Africa at a momentous cross-roads. Changes, differing in their strength from one socio-economic group to another, in the reasons for, and social practices underlying, high fertility are bringing about new attitudes favourable to the emergence of fertility transitions which will diverge both as to content and timing.

The Social Construction of Reproductive Outcomes Social marginalization in Sub-Saharan Africa

Caroline BLEDSOE*

Population analysts increasingly recognize that the complexities of family life – its births, deaths, marriages and moves – cannot be explained without understanding the broader economic and social environments in which people are embedded. Such analyses are pivotal to the new challenge of explaining changes in African fertility regimes.

Traditional approaches to explaining high African fertility assume pre-natal methods of biological control to be the primary means of regulating family size and composition. Yet biological fertility does not guarantee support for parents. Some children will die before reaching adulthood; others will achieve little educational or employment success. Relatives or friends may ask to foster particularly promising or hard-working children, claims that parents cannot gracefully deny, effectively diverting many benefits that these children will produce. Finally, children themselves will inevitably fail to fulfill many parental claims, as they try to balance the needs of their conjugal families against the demands of extended kin and former benefactors – all this in the context of national economic problems of recession and inflation. In sum, although biological fertility clearly influences how families grow and change, it has limited responsiveness for individuals' changing needs at different life stages.

In Africa, furthermore, although many people are theoretically responsible for a child, that child cannot necessarily rely on consistent support from an infinitely expandable system of kin and friends. Otherwise, there would be no malnourished or deprived children; or, at least, they would be equally distributed throughout the population. Since it is impossible for adults to fulfill all obligations entailed in all the kinship relationships in which they are involved, it is difficult to argue that extended family systems can ensure adequate care for all children.

* Dept. of Anthropology, Northwestern University, 1810 Hinman Avenue, Evanston, Illinois 60208-1310, USA.

Because children do not, or cannot, follow strict expectations of support for dependent kin, adults view a child as a bundle of potentialities. Also, kids see a range of adults as potential "parents".

In light of the sharp economic decline most African countries are facing, we may well ask how reproduction is responding. Most Westerners would immediately seize upon contraception as a solution to economic pressures, a movement that might precipitate what Lesthaeghe (1989) terms a "crisis-led fertility transition". Yet despite the economic shortfalls they face, most families in Africa appear to regard reducing numbers of children as an extreme measure that severely limits their options. As a result, fertility reduction remains the explicit strategy mainly of educated urbanites, and contraception is having a discernible impact on total fertility rates in only a few countries. If we assume that fertility strategies are anchored with Malthusian bolts to economic shifts, we brush over some fundamental, adaptive strategies that families are using. What else, then, is happening that narrow analyses of reproduction may obscure?

This paper shows that the social sponge has an immense absorptive capacity. Fertility limitation comprises merely a small wedge of the available corpus of social and geographical options for managing the costs of reproduction. A straightforward analysis of a household's current composition or a woman's fertility history masks the fact that the costs of raising children can be postponed or spread over time, region, and social groups. Families' coping strategies can even include redefining the status, and therefore the "entitlements" (Sen, 1981), of some wives and children.

Rather than attempting to make specific predictions about how fertility may decline in Africa, this paper sets out some aspects of social life that even now may be playing key roles in delaying or prolonging the transition. It draws on material primarily from my field experience in Sierra Leone and Liberia, although the patterns it highlights are quite widespread. Some of the issues it treats are well known, even common-sensical. Others are relatively undigested in Africanist demographic and social research.

SOCIAL EFFORTS TO ABSORB THE COSTS OF CHILDREN

Social efforts to shape family size, composition and costs take two principal forms. The first is adjusting numbers of dependents over time, space, and economic regimes. The second is less obvious but no less powerful: efforts to define relationships to individuals in ways designed to influence obligations. We turn first to simple efforts to adjust numbers.

Adjusting numbers of household members

Among the most mechanical ways of regulating numbers of household member are efforts by families to add new wives, foster children, clients,

or in-laws. A man needing additional farm labor may acquire a second wife, and he welcomes each of her children as valued members of the household. He may also bring in his younger brother, or raise the children of relatives, encouraging them, in turn, to bring in spouses, in-laws, migrant clients, and so on.

Yet a credible argument that groups are shaped socially would acknowledge equally the opposite potential: decrement, or shedding responsibilities. Decremental processes raise the most intriguing questions regarding family construction issues because they have received little analytical attention. They are also likely to take on proportionately more importance in the context of economic decline. Hence, the paper focuses most attention on such processes.

Divorcing a wife would be a simple example of numerical decrement. For decreasing numbers of children, birth control is the most obvious strategy. Abortion is another. These, however, are still relatively uncommon in most African countries. Most social shaping of reproduction occurs *after* the birth event.

One way of socially reducing responsibilities post-natally for children is through infanticide. In an often-cited analysis, Scrimshaw (1978) argues that infanticide, whether through maltreatment or neglect, offers a way for poor couples lacking adequate forms of birth control to reduce their completed family size. Common as this might be, however, as a solution to fertility imbalances in Latin America and Asia, it is quite rare in Africa. Further, in more conceptual terms, infanticide – and even prenatal measures such as birth control and abortion – are poor coping strategies. In precluding or ending lives, they represent extreme, irreversible measures. People facing a shaky economic future prefer to keep their reproductive options open. Knowing they will have considerable scope for shaping their family size and composition as subsequent events unfold, most people are eager to have children. (School girls are the obvious exceptions; since their educational careers will likely terminate with a visible pregnancy, their rates of contraception and abortion are extremely high.) What, then, are the more acceptable means of regulating family size and composition after children are born?

Child fosterage is an immediate example. Fertility models often assume that the only adults who face the economic consequences of raising children are the ones who biologically bear them. Conversely, the children whom parents bear biologically are treated as the only ones from whom they can later draw support. These assumptions predispose us to take *parents* as the exclusive focus of surveys: why they want children, how they support them, and when they can expect to derive benefits. Fosterage practices challenge the assumptions that equate biological fertility with economic responsibility. In Africa, support for and benefits from children are rarely confined to parents, as numerous studies show (e.g., Locoh, 1982; Isiugo-Abanihe, 1985; Frank, 1985; and Page, 1989). Certainly fosterage, unlike infanticide, leaves opportunities for subsequent maneuvers. It can be done and undone a number of times, even with the same child, to meet new

exigencies. And it is quite acceptable socially – even preferred if children gain opportunities for advancement.

The fact that children can be moved around demonstrates that the costs of child rearing can be spread by exploiting differences in geography, economy, and time. If we can conceptualize a family or a household very broadly, rather than as being fixed in one place or time, or even in one sphere of economic exchange, it should be clear that the costs of maintaining a family can be spread in different ways. Under-employed urbanites may ask their rural subsistence farmer relatives for immediate supplies of food staples to help feed their families; when their cash flow situation improves, they may be asked by the rural kin for money to pay taxes or school fees.

Fosterage works in similar ways to distribute the costs of raising a family. While young children may be sent to rural “grannies” to be raised, their parents intermittently send subsidies of urban cash, consumer goods, and legal assistance to the grannies. When the children reach six or so, there is a reverse shift as they come back to their parents’ homes, or go on to more urban areas for training. In effect, urbanites can spread out some of the costs of raising children: they can shift the costs of feeding and caring for children while they are small to non-cash channels in rural subsistence areas. When the children reach the age of “sense”, they require better schooling or skilled trade apprenticeships, which are usually found in urban areas.

Managing social relations with children

The complexity of socially managing family responsibilities deepens when we move beyond mechanical strategies of adjusting household numbers into the more nebulous realm of negotiating obligations toward, and expected benefits from children (as Comaroff and Roberts (1981) might term this, “managing the meaning” of relations with children). Although everyone agrees for the most part on the rules of society, how these rules are applied, and whom they are applied to, is subject to constant contention.

Although adults hope to draw support from children, actually deriving the benefits to which they believe they are entitled, whether from their own children or others, is highly problematic. Instead of viewing children as reliable sources of future support, parents and guardians alike view children as *potential* sources of support. They treat the original fertility event as the beginning of a long, continuously negotiated relationship (see Comaroff and Roberto, 1981, on the notion of potentialities), a process that may conflict with other people’s efforts to make claims on the child or with the child’s own desires to forge a more independent life or create links with other people. As such, they try to build personal security through three on-going principal strategies: (1) reinforcing their claims on the benefits to which they believe they are entitled; (2) reassessing children constantly, investing heavily in children who begin to show promise of success, and skirting obligations to those headed for failure; (3) diversifying their claims

in many children, both their own and others. Again, we can discern both accretive and decremental processes.

Adults can invest in other people's children, for example, by paying the educational costs for a child known to be clever in school. Typically, people who made any contribution at all to a young wage earner's upbringing – school fees, transportation fares, even a bowl of rice one day when he is hungry – will later use this act (whether actual or claimed) to demand assistance. As a result, while many students face enormous economic difficulties, the brightest ones can collect what they construe as "school expenses" many times over, spending the excess on clothes, cigarettes, and dances. Whether children actually embezzle these funds, an action ordinarily subject to severe punishment, matters less to adults than the fact that their contributions lay a basis for making future claims.

Another way of attempting to create obligations is through the strategic use of kin ties. Classificatory kinship systems such as those in Africa offer a prime example. They collapse many relationships into a few categories, meaning that many people can be called one's "mother", "uncle", "grandmother" or "son." Yet although fledgling anthropologists learn that rules of lineage affiliation dictate widespread sharing among descent group members, reality may be quite different for two reasons. First, although everyone generally agrees on what these relationships mean, it is not always clear how these labels are to be applied. People may use diminutive kin terms or no kin terms at all when dealing with individuals with few accomplishments, but they almost invariably use terms implying close kinship connections when asking for help from the most distant relatives (or even fictive ones).

Second, the kinds of obligations that classificatory kinship – or even straightforward biological kinship – implies is not always clear. Should an individual give up all his personal wealth if kin demand it? Should he slight one kinsman in favor of another? A wealthy individual is no less immune to these dilemmas than other people. Indeed, he likely faces a constant barrage of requests that are, according to the strict rules of classificatory kinship entitlement, quite legitimate; all claimants stress both their close relationship to him and his indebtedness to them. Such requests come not only from classificatory kin; they also come from fictive relatives, from former guardians, and from anyone else who claims to have helped in the individual's upbringing. Indeed, whether a supporter actually phrases requests for reciprocity in kin terms, it is understood by everyone that a young person who has been helped in such a manner stands in a child-like relationship to this supporter. Although economic reciprocity is expected, each benefactor becomes one of many claimants, all of whom it is impossible to satisfy. Many wage earners try to deflect requests from rural kin, despite possessing what appears to villagers to be exorbitant urban incomes. Successful urbanites learn to make short, unannounced visits to their rural homes, or feign sickness during visits in order to avoid long lines of people who claim to have been instrumental to their success.

MARGINALIZING CHILDREN

We readily recognize that adults can shed conjugal partners by divorcing them. What we less readily recognize is that children can also be "divorced" or marginalized. Just as adults must perpetually try to negotiate benefits from children, they must also find ways to buffer demands to avoid shouldering more responsibilities for children than they can fulfill.

How does marginalization occur? When faced with mounting demands, adults may begin to de-emphasize their ties to individuals with little promise or to ignore the rights associated with a kinship position. Thus, whereas a bright student who wins a college scholarship finds himself with a flood of offers from adults, related and unrelated, suddenly eager to help him with expenses, a primary school dropout finds it difficult to enforce even the most minimal lineage rights.

Fosterage is one obvious axis of differentiation. It would be clearly wrong to claim that all children separated from their parents are socially marginalized. As the case described above reveals, a married woman who takes in a younger sibling or a sibling's child may also be quite attentive to this child's needs. Especially young children with grandmothers tend to be spoiled with attention and food. In most cases, though, adults stress that foster children "in training" should not be pampered, and they tend to feed foster children less than other children in the household, give them less medical attention, and treat them as servants (Bledsoe *et al.*, 1988). This is true particularly if the caretaker has a higher status than that of the parents, even when the parents and caretakers are related. In such cases, guardians often brush over kin ties, perhaps referring to the child as the offspring of rural "villagers".

Despite the relatively visible potential for discrimination in fosterage relationships, there is no one preferred kinship relationship that has better access to inherently privileged resource allocations. Hence, if difficult allocation decisions must be made, the fosterage relationship is often accorded less importance; but it is also true that children by previous unions or low-status partners are equally likely to face shortfalls. Indeed, any relationship has elements that can be seized upon to justify inequities. Relationships with one's own children are especially important examples. If resources are limited, parents may foster out their children to guardians who can give them few educational opportunities. They may also invest selectively in their children by sex, sibling order, temperament, physical characteristics, or promise for future success.

For a woman, degree of paternal interest in a child she has borne is a focal point of interest. After she bears a child, she may sense the father's interest in the union ebbing. If this occurs, her best strategy might be to send the child away to kin and focus on creating a new union. If she finds her current husband flagging in his efforts to support her, a woman may

express her anger by discriminating against the children he fathered with her. This is true especially when another woman is involved. A man related that when he gave his wife no money for the day or "slept out" with a girlfriend, she would beat "his" children or deprive them of food for small infractions, and so on. By contrast, she would provide royal treatment for her sister's son, whom she was fostering. One time, after the man "slept out," he returned to find his wife and her nephew eating the daily meal for the entire household, her own children looking on in hungry silence. Referring indirectly to the money he spent on his lover, she said spitefully, "Let [your children] eat the food you have provided".

For a man, one of the most important distinctions among children derives from the inevitable ranking among his wives. Despite egalitarian ideals, a polygynous man usually ranks his wives according to their (1) seniority in the house, (2) educational achievements, (3) social and political connections, (4) business successes, or (5) special designations, such as the "favorite" or "official" wife of an educated man who must appear as a monogamist in formal urban contexts.

In the past, relationships among co-wives were never perfectly equal. Yet factors such as education appear to be exacerbating inequities among *de facto* polygynous wives. A man facing economic and social pressures can initiate several potential conjugal links, but minimize his costs by selecting a principal wife – usually the one with the most education or prestigious family connections – and marginalizing the rest as "outside" wives, lacking full legal status under modern statutory or ordinance codes (see also Mann, 1985:103). The "outside" or "country" wife tends to live in a more rural area or poorer neighborhood, and her children are relegated to less prestigious schools.

The logic of polygynous competition applies as much to marginal or defunct unions as it does to extant legitimate ones. Besides his current unions, a man may well have entered others that have become defunct because of divorce or spousal death. Even a man who is technically monogamous may be a partner to other current unions; a wealthy urban man living with his wife may be a "sugar daddy" to a young woman completing secondary school, and he may have other partners known as "outside wives", "country wives" or "deuxieme bureaux". As religious, economic, and policy measures put increasing pressure on the institution of polygyny, these secondary unions seem to be supplanting previous forms of marriage in which all a man's conjugal partners could be acknowledged as wives with full legal status. Whereas an educated woman from a socially high urban family is liable to be treated as the "inside" wife and married by statutory rites, uneducated women from lower status rural families are much more likely to be labelled "outside" wives.

Polygyny and the jealousies it spawns among women comprise one of the most commonly noted features of sub-Saharan social organization. Less often recognized is the fact that how a man ranks his wives has a considerable bearing on the support he provides for their children. Some men try to give equal benefits to all their children. But when choices have

to be made, the children by "outside" or former wives usually fall short. The status of such women and the children they bear is often tenuous (see also Phillips and Morris, 1971:5; Guyer, 1984; Gyepi-Garbrah, 1985; Vellenga, 1986:223; Hakansson, 1988). A man readily produces money to send a sick child of his "inside" wife to the clinic, or strains the household budget to educate the children of a wife from a high status family whose good will he is cultivating. In contrast, the children of a woman from a family of low prestige or those from a previous union may be given pills purchased from itinerant traders, and are dispatched to trade apprenticeships instead of to school.

The irony is that we usually consider a nuclear family or a monogamous union to be the result of decisions taken at the outset of a couple's conjugal life. If we acknowledge the phenomenon of social marginalization, however, we see that a nuclear conjugal family and the patterns of investment within it may emerge as the outcome of a longterm *post-hoc* process of establishing unions, bearing children, and periodically sloughing off ties to all but one core "inside" set that may emerge much later in the formation of the family. Such patterns are likely to take on increasing importance as economic conditions worsen.

Not only can men create distance between themselves and children through labelling the unions in which the children were born as having low status, they can also throw open the question of paternity itself¹. Men and their kin appear to be increasingly unwilling to claim "illegitimate" children (e.g., Launay, ms.) by denying paternity responsibilities. Furthermore, I recorded a surprising number of cases in both Liberia and Sierra Leone where women or even children suddenly tried to change attributions of paternity – usually in situations where a child of questionable background faced a crucial turning point in life, or experienced a sudden shift in fortunes. During chieftaincy struggles, for example, when direct descent from a chief is an essential qualification for office, one faction may accuse the leading candidate from a rival faction of being the offspring of a secret love affair, instead the legitimate son of a chief. Far from being an unambiguous social relationship, therefore, fatherhood is open to reconstrual for many years after the birth event. (Motherhood can be ambiguous as well, but space prohibits a treatment of this more complex issue.)

Ambiguity is inherent in paternity for two principal reasons. First, marriage consists more of a process than a clearly defined event. For example, the fact that a woman may have had more than one partner before settling down in marriage means that doubt may cloud the child's origins. Second, a woman may have (or been accused of having) had a lover. Such doubts about a child's paternity arise most often in divorce cases. A woman who had a lover before the breakup of her marriage may label him as the father, even if she herself is uncertain, so that he will be willing to pay her divorce costs and marry her.

¹ While it is not clear that children technically can be illegitimate because of lineage rules of affiliation, it is quite clear that a man can deny paternity for a specific child.

Yet the axiom that people try to avoid cutting off reproductive options in abrupt, irreversible ways explains why some people deliberately maintain ambiguity about a child's paternity. For men, claiming fatherhood in questionable cases entails expenses that might be spared by leaving paternity ambiguous until it becomes clear that being the father is advantageous. Claiming fatherhood is also risky because grown children may prove "ungrateful" and provide little support for their fathers. Maintaining ambiguity therefore helps men retain maneuverability. It also helps them to diminish ties temporarily to children and their mothers during the years when expenses and risks are greatest.

Women, of course, may try to attribute fatherhood of their children to men of wealth and prestige in order to acquire support and education for the children. Although the payoff may be greater, however, large status differentials between the partners make it difficult for a woman and her children to make a paternity definition stick. In one case, an important Liberian official formally married an educated woman in Monrovia while retaining several "country" wives in his home area whom he had contracted through customary arrangements with their families. These women cared for his needs when he was upcountry and would eventually serve him when he retired there. The man had several children by these women. Yet he introduced the children, when they came to visit in the city, as the offspring of his dead older brother – an individual whom everyone in the rural area knew had been sterile. He also evaded the label of father when the children asked him for large sums of money.

On one occasion, when I visited him in his rural home, two of the children addressed him in English, for my benefit, as "Daddy" and asked him for money to build a house away from bickering relatives and an authoritarian landlady. Realizing they were using my presence to pressure him, the official adroitly turned the situation to his own advantage. He turned to me and asked rhetorically why he should waste so much money on "these people" when they were only the children of his brother's wife – in effect not only denying his own paternity, but also implying that these children were possibly the offspring of a man other than his brother. He may have been embarrassed, of course, to admit to me that he had children by "country wives." Nonetheless, in one stroke he was able to redefine the children as classificatory, if not illegitimate, and to refuse their request, knowing they would not risk embarrassing him by disputing his construal of their status.

Making marginalization more comprehensible

Shedding or marginalizing ties to certain children is a less palatable notion than that of accreting ties. No one would argue that families like to limit children's options. Yet some children may be allocated more resources than others. How can we make this phenomenon more comprehensible?

First, given the difficulties that severe resource limitations sometimes create within families, it should not be surprising that bitter contention may

arise over how resources should be distributed. Folbre (1976:246-7) concurs in her critique of both Marxist and Neoclassical ("New Home Economics") views of households as undifferentiated, sharing units. She asserts that inequities and struggles over scarce resources at the broader societal level take graphic shape within households:

"... it is somewhat inconsistent to suggest that individuals who are entirely selfish in the market... are entirely 'selfless' within the family, where they pursue the interests of the collectivity. The vision of pure altruism within the family resembles nothing so much as the Marxian vision of utopian socialism. There is something paradoxical about the juxtaposition of naked self-interest that presumably motivates efficient allocation of market resources and a perfect altruism that presumably motivates equitable allocation of family resources."

The second point to underscore about marginalization is that the same flexibility by which one household withdraws support from an individual may allow another household to pick up the slack. A woman who feels her husband is slighting her for another wife may receive compensatory assistance from her own family, as the all-important principle of matrilineal affiliation in a patrilineal society would lead us to expect. Her brother may pick up the costs of her children's school fees, or her mother may decide to raise some of her children.

Finally, we should stress that social marginalization is potentially reversible. No one would deny that if children are cut off too sharply, their chances for success suffer; a child who lacks the resources to go to anything other than a small rural school is much less likely to succeed in the modern world than one sent to an exclusive urban school. Yet what is most significant about marginalization as a means of reducing the costs of children, in contrast to preventing births, is the fact that many of its effects can be reversed. By being kept in an ambiguous state, an "outside" child can be reincorporated as legitimate, and paternity can be reclaimed on the pretext of new evidence that suddenly comes to light. Such an outcome is especially likely if the child becomes successful. In fact, what we might classify as marginalization may represent less an effort to permanently exclude an individual from a family or household than an attempt to postpone responsibilities until subsequent events unfold.

DISCUSSION

Typologies often obscure as much as they illuminate. Rarely are social actions purely marginalizing, or even decremental or accretive in intent. Yet the general principle remains: families have an enormous range of maneuverability well after the events of marriage or birth. The notion of shaping relationships for the future, combined with the contractual nature of fertility and fosterage, stretches the social nature of reproduction to a more flexible and dynamic view: the "social construction of demographic reality". This approach draws attention to people's active efforts to achieve

demographic outcomes by restructuring household compositions and influencing children's obligations, rather than acting strictly within the biological bounds or cultural norms that seem to be imposed on them. Individuals constantly tinker with family structures in ways that cumbersome biological acts of fertility cannot do.

Since methods of family formation in Africa can be *post-natal* and *socially managed*, most parents would be foolish to outline at the outset of their reproductive careers a clear fertility limitation strategy. "Cost and benefit" calculus of biological fertility have little meaning in daily life. Because individuals attempt to reshape their obligations and sources of support, demographically important events, such as becoming a spouse or a parent, are experienced by local people as ongoing social processes that only begin with the acts of marriage or childbirth. Fosterage is only one example of a much wider pattern of testing relationships as they evolve, and tinkering with household arrangements well after the biological event of birth. Not only can people other than parents assume the costs of children but these costs can be put off or delayed until the perceived benefits of supporting the children warrant the risks. Even the concept of "completed family size" is inadequate because it implies an unambiguous final result instead of acknowledging the possibility of continual maneuvering.

Such observations apply equally to more socially recognized positions of "inside" wives and children. We often point out that people in high status categories of urban, educated elite are taking active steps to stem biological reproduction by practicing birth control. Less obvious is the fact that many have already taken active steps, through strategies of marginalization, to shape their families by social means.

This perspective also suggests that individuals occupying apparently opposite statuses – "inside" vs. "outside" wives and children, fostered children vs. those living with parents, legitimate vs. illegitimate children, etc. – are less distinct from each other than we might assume. Both reflect outcomes of the same pressures that come to bear on polygyny and high fertility. Discussing these marginalized groups as if they represented completely distinct sectors of society overlooks the common forces that created and shaped them. Treating them as wholly distinct also ignores the uneasy tension that could potentially overturn the hierarchy and transform an "outside" wife and her children into "inside" ones. In fact, parents who are marginalizing some of their children might be simultaneously assisting someone else's child or resuming help for some of their older children whose demands were slighted during more difficult times.

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At this point, we can turn to some specific questions that the process of socially constructing families raises for fertility research. First, it suggests that, when asked to speculate about the sources of fertility change in Africa, we might do well to turn greater attention to the processes of

minimizing costs. Whatever discriminations such people suffer now (in terms of mortality, morbidity, or loss of economic and educational opportunities) are likely to be accentuated if economic pressures intensify. Moreover, although flexibilities in supporting children allow people either to withdraw or increase assistance, the marginalization thesis would suggest that when times are hard, the minimizing tendency would outweigh that of maximizing.

If pressed to predict whether practices such as fosterage will play a central role in a fertility transition, I would be on shaky ground. Certainly the maneuvering room that fosterage gives parents makes it unlikely that fertility declines will coincide perfectly with economic declines. My own study (1990) showed that high fertility is indeed associated with high fosterage rates within specific Mende areas. Yet if the two variables are linked systematically, the Mende, who have very high rates of fosterage compared with other African groups, should also have high relative rates of fertility. This is not the case. Completed family size for the Mende (in both my surveys, women from 40 to 60 had borne about 5.7 children) is clearly smaller than for parts of East Africa, where fosterage rates are low (see Page [1989] for a fuller discussion). We may be able to conclude only that though fosterage is a quite effective way of absorbing parental costs of children, it is only one of a range of such mechanisms.

Yet if deflecting the costs of raising children is one potentiality of fosterage, we can begin to ask broader questions about how children's costs are absorbed, questions that the Mende of Sierra Leone would probably find obvious: Why do people begin to believe that parents alone are responsible for their children? At what point do parents decide to reduce their fertility, instead of trying to foster out children? And why do other people become unwilling to take on the burden of children they did not bear?

Another reason to focus on marginalized people is that they may have distinct fertility behavior. Guyer (in press) argues, for example, that an unmarried woman needs children in order to make claims on male resources. Yet because such support is usually only intermittent at best, a counter-argument might posit that a woman is better off cutting down her number of children and focusing on other avenues of supporting herself and her children. The effect on fertility is unclear. Beside its influence on women through the pressures of informal union, marginalization may make the children resulting from these unions follow reproductive trajectories that differ significantly from much of the population. These children usually suffer from weak kinship supports; clearly they rank low in the social hierarchy. Such children may be forced into coping mechanisms that include fertility responses such as early sexual relations and childbearing outside of marriage (Guyer, pers. comm.). The same appears to be true for some kinds of foster children, particularly older girls who are taken in as domestic servants.

Whether women and their children in informal union are actually different enough in their fertility behaviors to make an impact on overall fertility rates is difficult to say. Certainly, because of both the dramatic changes

occurring in society, and the lengthy, ambiguous nature of marriage itself, it would be difficult to estimate the number of individuals to whom such patterns apply. Nor can we safely predict that their fertility patterns are precursors of more general trends toward fertility change on a wider basis. We simply know too little about marginal categories at this point. Perhaps because they *are* considered non-normal, they have seldom been taken as central foci of research importance; most subjects of fertility research, whether explicit or implicit, remain "married couples".

Finally, this latter point suggests that, although we are accustomed to examining female fertility, *male* views of marriage and fertility comprise an enormous gap in our knowledge. Though male fertility is less easily studied than that of females, looking at fertility from the perspective of a polygynist (whether actual or *de facto*) may yield significant insight. This would be particularly true for studying the dynamics of investment and marginalization (among the various women with whom a man has created unions). Much like the question of at what point will parents assume the costs of their own reproduction, we could ask why men might decide to curtail their fertility and limit their conjugal partners, instead of seeing these marginal social categories as preferable.

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ABSTRACT

Although biological reproduction has obvious importance for how families grow, its potential for fulfilling individuals' needs at different life stages is quite circumscribed. Most parents, on the other hand, cannot pay all their children's costs all the time. People therefore try to avoid the drastic step of actually reducing births, finding instead ways to spread out the costs of children in more manageable ways. This paper elaborates one such way: social marginalization. It points out that while people who are not parents may sometimes provides support for children, children may also face shortfalls on the basis of their mothers' status in the household, their fosterage status, or their promise for future success. Implications of these marginalization processes are drawn for fertility research.

Service Quality and Family Planning Outreach in Sub-Saharan Africa

Lawrence A. ADEOKUN*

One of the dominant strategies in the pursuit of rapid fertility transition in Africa is the improvement of coverage and quality of family planning services. The central thesis upon which the strategy is based is that such improvement will ultimately lead to fertility decline through improved individual knowledge of contraceptives and their benefits, greater continuation of use of adopted methods, and a higher level of satisfaction with family planning services. The quality of care framework elaborates the major elements of services upon which such a strategy should be based (Jain, 1989; Bruce, 1989, 1990; Townsend and Tolbert, 1990; Dwyer and Haws, 1990). The applicability of the service elements, as opposed to aspects such as the "program effort" or "impacts" of this framework to the socio-economic context of family service delivery in sub-Saharan Africa forms the central theme of this paper. We first examine the evolution of care issues in family planning and explain the various approaches which have been adopted to analyse the coverage of services. Then, we present the service elements of the framework and discuss the implications for the outreach needs of family planning programmes within the sub-region.

EVOLUTION OF QUALITY ISSUES IN FAMILY PLANNING

The upsurge of concern shown about quality of family planning services in general, and in sub-Saharan Africa in particular, is an outgrowth of earlier attempts at identifying which programmes worked, under what circumstances, and through what mechanisms (Lapham and Mauldin, 1987, 1985, 1984, Ross and Mauldin, 1993). The methods employed, and the results obtained reflect the higher priority given to population control objectives as opposed to the direct reproductive health benefits of family planning. The primary objective of analysis was to quantify the effectiveness

* Institute of Statistics and Applied Economics, Makerere University, P.O. Box 7062, Kampala, Uganda.

of programmes in terms of their contribution to population growth reduction (Bongaarts, Mauldin and Phillips, 1990). The ultimate aim was to identify which programme elements could be manipulated in populations experiencing rapid growth in order to achieve fertility decline.

This emphasis on population control impact meant that attention was drawn to the role of strong population policy, the importance of programme effort and the significance of the developmental context in which programmes were located; also examined was the role of cultural attitudes and beliefs in the acceptability of family planning ideals and methods. This emphasis resulted in a worldwide increase in training and research, and a sustained effort to increase international awareness of population problems. It also resulted in the aggressive pursuit of those programme elements which showed the most promising impact on fertility reduction (Donaldson, 1990).

In all these research and programme developments, the sub-Saharan African region lagged behind the other developing countries (Locoh, 1992), making the isolation of any successful programme elements one of the major concerns of population programmes in the sub-region. The fact that rapid decline occurred in a number of developing countries without a substantial transformation of their economies refutes the theoretical link between the economic development and the fertility decline which it was supposed to produce. Hope has thus been raised that, given the right set of population policy and programmes, fertility decline can occur, even in the transition resistant conditions of sub-Saharan Africa (Robinson, 1992).

However, by justifying population control programmes and activities with national economic benefits, attention tends to be drawn away from the equally legitimate individual level health and welfare considerations which influence a couple's behaviour (National Academy of Sciences, 1989). The urgency of national problems tends to encourage the propagation of family planning methods and delivery systems that will produce the most rapid demographic impact – through maximum coverage, greatest continuity of usage, and lowest possible failure rate. A review of some of these methods and systems is essential in order to discuss the relationships between service quality issues and the outreach of family planning beyond health institutions.

APPROACHES TO FAMILY PLANNING DELIVERY

Of the various programme designs aimed at the maximization of family planning coverage and impact, four deserve some mention. These are the postpartum, community based distribution (CBD), work-place clinic and social marketing approaches. Each approach in its own way addresses, to the exclusion of others a narrow band of program issues, although highlighting the utility of a holistic approach, such as implied in the specifications of the quality of care framework.

Postpartum Contraception

The conventional wisdom behind the postpartum approach is that, since parturition takes place at fixed health institutions, the administrative and psychological advantages of providers at such points can be seized to deliver women's contraceptive needs. Unfortunately, this approach leaves out a significant proportion of women, especially in sub-Saharan Africa where the provision and requisition of both pre- and post-natal services are very low (Faundes, 1990). It is instructive that those countries with higher levels of reproductive health services, such as Zimbabwe and Botswana, show correspondingly higher levels of contraceptive prevalence. It is also instructive that some countries with equally high levels of reproductive health monitoring show very low levels of contraceptive prevalence. It is to this category that Ghana and Liberia belong (Stewart and Sommerfelt, 1991).

Other problems of the postpartum approach include the narrow range of contraceptives that can conceivably be given within the postpartum period – hormonal contraceptives being contra-indicated and some barrier methods, such as the diaphragm being premature since cervical measurements cannot be accurately taken for the provision of devices. In addition, doubts have been raised about the benefit of "capturing" women at the postpartum period (Winikoff and Mensch, 1990). In effect, by concentrating on just one point of health institutional contact, this approach fails to address the range of issues involved in reproduction and contraception.

Community Based Distribution

The CBD approach attempts to address some of the flaws in the underlying assumptions of the postpartum approach. This is achieved by introducing a wider network of providers and by departing from the "fixed-point" delivery of services (Adekun, 1978). Some attempt is also made at expanding the "mix" of services, mostly to blunt any stigmas that may result from a narrowly defined contraceptive service; for in many traditional societies suspicion of some aspects of family planning and contraception still prevails (Ladipo *et al.*, 1990). The main problems with the CBD approach rest in finding a suitable number of local health workers with the personal circumstances to train to deliver the services. This recruitment problem is exacerbated by both the inequalities existing in the education provided for each sex, and in higher female drop-out rates that dominate all levels of education in most countries of sub-Saharan Africa. Another problem is the distortion of service mix by those programme managers who are more loyal to the primary health component than to the family planning, or vice versa. In effect, the CBD approach only applies to a narrow range of non-prescriptive methods of contraception.

Work-place Clinics

The delivery of family planning services in the work-place apparently escapes some of the problems identified for the CBD. The clients are located within a circumscribed area. Nearly all are educated and relatively better informed about contraceptives and are more disposed, particularly since such services are subsidized, to their adoption than their unemployed counterparts. Both sexes can be reached in the work-place although the male dominated employment market mean that the female contact is much less. In spite of these advantages, the direct costs of services to employers can still be a deterrent to rapid expansion of such programmes. International agencies often provide the services and grants necessary to supplement the salary components as well as some infrastructure. Yet, the sustenance of such programmes requires a long-term commitment and funding from host institutions or governments after the donor support has dwindled. In addition, the coverage of such program, is limited as in the case of health-unit based services, by the very tiny formal sector employment base in most sub-Saharan African countries.

Social Marketing Approach

The last delivery approach which draws out the features of family planning and population programme management is the social marketing method. This approach adapts the existing lines of health delivery within a community in order to propagate family planning ideals and distribute contraceptives in support. In a typical programme, medical practitioners, within and without the public health sector, are recruited to provide family planning services at a social cost, as opposed to a "for profit" cost. In some programmes, para-medics are involved. The latter include pharmacists and some unlicensed drug dealers (Davies *et al.*, 1987). The methods most commonly available in such programmes are the oral contraceptives (OCs) and the condom (The Population Council, 1990, 1990a, 1989).

Theoretically, this approach should allow a wide network of distribution, contributing to the convenience with which clients can access methods and maintain regular supplies. It should also improve coverage and continuity of use and user satisfaction. But in practice, differences arise between a project's expectations and the performance and self-perceived roles of those who are recruited to distribute methods. In Bangladesh, for example, doctors involved in the social marketing projects tended to give detailed information to their clients, while the pharmacists were more likely to pass on OCs without spending much time on the instructions for their use (Davies *et al.*, 1987). In addition, social marketing programmes can become selective, drawing patrons of particular educational or social groupings to specific channels of delivery. This tendency can produce substantial differences between the potential and the actual contribution of a marketing channel to the volume of information and services flowing through that channel.

It is partly in response to the inadequacies of the existing approaches, as well as the persistence of high fertility, particularly in sub-Saharan Africa, that makes relevant this assessment of characteristics that could enhance programme performance. The formulation of the propositions of the framework took into account both the failures and successes of past programme efforts and some intuitive understanding of the needs of women; these suggest that the improved quality of care is a valid precondition of fertility decline (Jain, 1989; Bruce, 1989, 1990; Townsend and Tolbert, 1990; Dwyer and Haws, 1990). In the rest of the paper, attention will be turned to specific suggestions, the appropriateness of these suggestions and the extensions suitable to the present situations obtaining in the sub-region.

ELEMENTS OF SERVICE QUALITY IN OUTREACH PROGRAMME

Given the ready availability of the details of the framework (Bruce, 1989, 1990), the specifications of the six elements of service quality are listed in order to create a format for the discussions of outreach programme implications that follow. Those six elements are (a) that numbers and intrinsic variability of methods should be adequate to meet the current and emerging needs of special, demographic and other groups, and at different stages of their family formation (Bruce, 1989, p. 13); (b) that the information provided in client-provider contact should be adequate to form the basis of appropriate and satisfactory choices and employment of contraceptives (*ibid.*, p. 23); (c) that clients should be screened for methods, as well as for the prospective use and appropriate responses to the follow-up requirements of that method (*ibid.*, p. 32); (d) that the ideology, management style and resource allocation within a programme should encourage the best possible quality of interpersonal relations to exist between clients and providers (*ibid.*, p. 41); (e) that the mechanisms for such follow-up should be put in place, adopting any community channels or other formal arrangements in order to closely monitor the clients (*ibid.*, p. 50); and (f) that the appropriate constellation of services that assure the convenience and satisfaction of clients in their given health needs should be found through a mixture of the various delivery strategies described above (*ibid.*, p. 60).

Before embarking on an explanatory discussion and extension of the six elements, it should be noted that, by design, the framework was intended primarily for the description of family planning services in fixed point institutions (Bruce, 1989). The provider's control of quality issues within institutions also tends to dominate the analysis of services (Faundes, 1990; Miller *et al.*, 1991). Such application is of limited use in the infrequent institutions, poor staffing and training situation and the pervading poverty characteristic of most rural communities of sub-Saharan Africa. Consequently, the central thesis of the framework that improvement in quality

will result in fertility reduction cannot rest solely on services obtained in the public sector health institutions although evidence from outside sub-Saharan Africa does indicate that this link between quality and fertility decline can be valid (Jain, 1989; Bruce, 1989, 1990; Townsend and Tolbert, 1990; Dwyer and Haws, 1990).

The framework also ignores a wider matrix of issues relating to the personal circumstances of users, such as the domestic power structure (Oppong, 1970, 1983), the decision making processes relating to sexuality and fertility (Adeokun, 1982a, 1983) and the cultural limitations on female authority in society (which affect the adoption and ultimate user satisfaction with family planning services). But we now turn to the relevance of the six elements in a wider than was originally intended outreach context of family planning delivery.

Choice of methods

The very restriction of contraceptive choice to any one institution, no matter how well located and supplied, is a negation of the ideal of individual choice. This principle has been well illustrated in the behaviour of health care seekers in sub-Saharan Africa, as people commute between modern and traditional health systems (Odebiyi and Ekong, 1982; Schoepf, 1992). The possibility of supplementing traditional child spacing practices with modern contraceptives further confuses the static unit application of the possible choices, and confounds an analysis of the fertility reducing effect of any one decision.

Turning to specifics, the variety of modern methods within a clinic situation may offer the advantage of allowing clients to switch between methods, perhaps producing greater client satisfaction with services and increased adoption rates. But the impact of national programmes on user satisfaction will ultimately depend on the total network of choices made both inside and outside clinics.

Yet another reason for extending choice beyond the clinic context is that the conditions of informed choice – knowing what one needs, being able to assess options, and avoiding bias in choice – (Bruce, 1989), are open to serious manipulation within the clinic context, largely due to provider characteristics and their prejudices. Provider influence is particularly open to abuse among predominantly rural illiterate population. This influence can be better assessed in an "open" supply system than in a contrived "closed" clinic system. Needless to say, the non-prescriptive contraceptives, such as condoms, have been shown to alter the dynamics of contraceptive prevalence simply because they are outside the control of the clinics and clinicians (The Population Council, 1990, 1990a, 1989).

The reality of the sub-Saharan African situation is that the personal characteristics necessary to fully assess modern health service options, such as literacy and scientific sophistication, are not well developed in either the providers or the general population. Although others may argue that

communication of modern concepts under these conditions is not always impossible (Schoepf, 1992), the evidence, largely from intensive anthropological study situations, added to the peculiar circumstances of the AIDS epidemic, is not sufficient to negate the general principle that some of the modern medical concepts are presenting substantial hurdles to the assessment of options in the sub-region.

Information Provided

The amount of information communicated in the clinic-based application of the framework is delivered solely in the window of opportunity when clients engage in face-to-face contact with a family planning service provider. The extremely short and sporadic nature of such contacts between women and reproductive health care providers is documented in various DHS surveys (Stewart and Sommerfelt, 1991). This is one major argument against the likelihood that information received in health care institutions is the sole basis of choices made by clients. The evidence from various countries, revealed by the WFS studies, also support the argument that the sources of reproductive health information, and the validity of such information, can be quite varied in the developing country context (The Population Council, 1990, 1990a, 1989). Similarly, evaluations of AIDS control programmes in the sub-region are revealing the tangled lines of communication and the level of misinformation possible in the transmission of apparently simple messages (Moodie *et al.*, 1991).

It is apparent that the chances of misinformation may be higher in non-clinic situations, but that problem is as much a function of the difficulty of the concepts being transmitted as of the methods of transmission. A well developed programme of mass information, education and communication (IEC) may turn out to be both a useful preparation for clinic setting updates, and a more effective method of providing elementary family planning information than the short provider-client service contacts.

Along with the proven competence of para-medics at passing on information, and delivering technical services, such cadre can be employed as family planning providers and evaluated outside the clinic context. There is, however, some reluctance on the part of the hierarchy of the medical profession to encourage this delegation of responsibilities (Covington *et al.*, 1986).

The language of communication, inside or outside of clinics, is a major avenue for innovation in the improvement of family planning quality, especially under poor client knowledge bases. Most of the key terms in family planning carry both ordinary and specialized meanings. This can be a source of confusion for both providers and the public. A case in point is the anecdote from a medical officer regarding a lady who was found with a small piece of bed-spring coil which she had introduced into her vagina in the mistaken belief that she was adopting the IUD, popularly referred to as the "coil" (Turyasingura, Personal communication to the author, June 1991). Other terms with double meanings are "pills" and "injection". The role that

formal education systems and incomplete education can play in this dissemination of general and specific family planning information is largely unexplored in sub-Saharan Africa.

With reference to the evaluation of information and its impact on user satisfaction, measurements can include both formal and informal institutional settings. The process of such evaluation can make allowance for the persistence of any prejudices which earlier formulations of some contraceptives may have legitimately or wrongly created in the minds of the public.

Technical competence of providers and clients

Technical competence within the clinic context has understandably been defined primarily as provider competence, with some acknowledgement of the client's responsibility (Bruce, 1989). This approach draws major attention to the clinic-based methods such as IUDs, implants and, to a lesser extent, the pill. Such an emphasis rates the role of scientific knowledge in family planning adoption as more important than that of user conceptualization of how methods affect their well being. Attention is focused on the error-free transmission of information and the manipulative skills of the provider. But far more disconcerting in the sub-region is the potential difficulties foreseen in transferring knowledge at low levels of sophistication – for some providers and the majority of their clients. Consequently, the evaluation of the user information dimension is as important to technical competence as the evaluation of a provider's training and supervision.

Method specific competence varies so widely that the skills needed to correctly employ such non-prescriptive methods as the condom are often overlooked. The technical measure of the failure rate of such apparently low-level-skill methods tends to ignore the relative lack of attention of family programmes to the population IEC needs.

Interpersonal relations

The formal clinic setting may appear ideal for the discussion of the interpersonal relations between providers and clients, but it is still appropriate to examine the aspects of this element in non-formal settings. Desirable and important as "understanding, respect and honesty" are as provider traits, anecdotes and indirect evidence from health facility utilization studies indicate that these very traits are often in short supply, especially in female health givers and female client interactions (Adeokun, 1982b).

Health workers in sub-Saharan Africa are, by virtue of their education, employment and income levels, often a class above the majority of clients they deal with. This socio-economic advantage may be translated into feelings of superiority, a sense of infallibility or authority which inhibits mutual respect and the receptivity of clients to the services being proffered.

At times, providers may also have reservations about the objectives and methods of family planning (Covington *et al.*, 1986), and communicate

those doubts to their clients. Clients' solutions to these provider doubts often include switching from one health unit to another, even if it involves greater discomfort. But the more frequent response is that significant numbers, in anticipation of unsatisfactory provider attitudes, completely avoid formal health sector institutions, seeking available services in less intimidating circumstances, such as pharmacists, unlicensed drug stores or other delivery systems that reduce the tension of interaction. The reason for these provider feelings have not been systematically studied, but implicated thus far are inadequate training (leading to poor topic mastery), lack of job satisfaction (due to poor working conditions), as well as personal flaws in the character of some care givers (Adeokun, 1982).

It appears plausible that providers will be more comfortable and tolerant with clients from a similar social background, and this expectation influences some of the methods of CBD programmes (Ladipo *et al.*, 1990). However, it should be noted that to the extent that family planning is still an innovation in most of the sub-region, this principle does not always work in favour of programme effectiveness. For example, in 1971, the demographic characteristics and basic attitudes of the maternal and child welfare field staff involved in a Nigerian rural family planning programme were observed to be so predominantly pro-natal, and so similar to those of their clients, that they lacked the moral authority needed to make the messages of family planning unpretentious to their audience. In contrast, nearly two decades later, the most significant factor of provider performance in a CBD project in Ibadan, Nigeria, was the sex of the provider; the female providers in general were better able to deliver services to persons of same sex than males (Ladipo *et al.*, 1990:318). Increasingly, the providers now are drawn from a motivated and relatively less pro-natal group than those they will serve.

Another dimension of interpersonal relations is that, ironically, within the institutional settings of the formal health sector there is an even greater difficulty in regulating the quality and behaviour of staff. Rather than facilitate supervisory and review processes, the hierarchical structure of formal sector institutions encourages a disengagement from the reward system of productivity and of performance of the staff. One possible explanation of this is that the patronage system tends to produce the worst on-the-job performance from the most powerfully connected workers. In addition, the security of tenure in the formal sector, in general, tended to protect government employees from the consequences of their action. Current economic realities and the structural adjustment programmes may have eroded the myth of security, but government employment still carries a sense of well being and invisibility. In contrast, private sector employees experience more immediate review processes and are more aware of the consequences of their personal interaction with clients.

Mechanism for continuity of follow-up

The need for follow-up of clients is the one aspect of the framework which obviously goes beyond the confines of the fixed point institutional setting. But the capacity for follow-up activities is often limited by the poor staffing, training and supervisory mechanisms within the majority of programmes in the sub-region. Furthermore it is also outside the institutions and within the communities that the follow-up activities are best located and operated. Consequently, the satisfactory follow-up experiences of traditional health practitioners and their clients stand in sharp contrast with those of the modern medical cadre who appear mostly unable to make the link between institution based services and client follow-up needs in the field.

The human and other resource limitations on programme capacity to cope with community level follow-up highlight the need to conceive of follow-up continuity in terms of a spatially flexible framework of care quality. As Bruce (1989, pp. 54-55) pointed out, the other delivery systems that operate within the community, such as the CBD and social marketing programmes, need to adapt their activities to follow-up needs, within both their own and the health institution based programmes. In practice, the seamless boundary between formal and informal sector programmes that could facilitate this flexibility is frequently lacking in programmes often conceived in isolation, staffed, operated and funded from a variety of donor sources, and lacking in basic programme integration. The chances of integration unfortunately seem to have completely receded for most sub-Saharan countries, as they grapple simultaneously with a dearth of internal revenue and a multiplicity of problems (rendering donor support highly selective and discriminatory). This is the situation producing AIDS control activities that are out of touch with family planning programmes with small pockets of glowing programme performance in countries at very low levels of overall family planning effectiveness.

Constellation of Services

One of the outcomes of these isolated, parallel programme activities is that family planning is difficult to achieve in institution-based programmes in the sub-region. The problem is not with the concept, but with the operational arrangements and personnel who are expected to execute this flexible combination and permutation of available family planning services to suit the immediate and pre-existing health needs of clients. The training of modern health workers, characterized by narrow specialization, compromises their capacity to respond to either the polyvalence required by integrated services or their client's multifaceted health needs. Rivalries between the different cadres make complementary operations, and a smooth division of labour, difficult within a service delivery system. Consequently,

the constellation of services are often forced, rather than functional, even within a single health establishment.

Once the static view of the clinic has been abandoned, it is possible to imagine another type of service constellation: a functional referral of clients between delivery systems, based on patients' needs, not the administrative convenience, of the packaging of certain services within one programme or among many. The experience of the social marketing programme in Bangladesh illustrates very clearly that although some channels may be better at some tasks than others, collectively they complement each other, and can be orchestrated and managed to handle an improved quantity and quality of service, including the enhancement of the range of services open to clients (Cleland and Mauldin, 1991).

From the longitudinal point of view of the reproductive health needs of a woman the repertoire of services can either be made available in a spatial or integrated vertical framework. But in reality those needs are best served when there is spatial spread of programme elements that correspond to the spatial spread of the domestic, social and economic activities of women. Such diverse approach to personal health has been present in parts of sub-Saharan Africa, as women chose from a number of elements of health care across the modern/traditional and the static/mobile domains of service delivery.

RESEARCH AND PROGRAMME IMPLICATIONS

The research and programming implications of the original formulation of the framework include several aspects: the design and execution of baseline situation analysis (Miller *et al.*, 1991); the monitoring of the contributions of the various elements singly or in combination with the performance of programmes and the operational manipulation of some elements to improve performance (Bruce, 1989). Other research and programming implications emerge when the quality of care issues are extended beyond the confines of health institutions. From the supply side, the centralization of contraceptive imports is currently more of a donor convenience than a pragmatic response to the demand structure of family planning services. The reality for most countries is that substantial volumes of contraceptives are distributed by private sector institutions. In effect, the data gathered for analyzing the supply and demand situation cannot be based on the centralized arrangements only. Fortunately, there are conceivable input-output management information techniques that will allow a national accounting of contraceptives. Information from the DHS surveys already point to the variety of sources that should be integrated into such a national accounting system (The Population Council, 1990, 1990a, 1989).

On the demand side, the life style at various times in the reproductive span of an individual or couple influences the impact that the various elements of quality have on their family planning decisions (Adeokun, 1993).

in press). Those life styles are a distillation of various dimension of the daily existence of individuals, including the place of residence, housing situation, patterns of economic and social behaviour and component of life satisfaction. These dimensions interact with the family planning programme elements, as well as with the connotations for the use of specific contraceptive methods, to determine the ultimate familiarity, acceptability and satisfaction with chosen services. The relationships between life style and features and performances of family planning services will demand additional application of the qualitative research method, especially in this sub-region, where very little work has been done in that direction.

The HIV/AIDS epidemic and the associated control programmes have added new dimensions to quality issues in contraception which cannot be ignored. Answers are urgently required for such questions as: What impact will the emphasis on condom use produce on contraceptive choices and decisions in general? What impact on constellation of services? Can Maternal and Child Health (MCH) programmes ignore the epidemic? Some answers are emerging from Colombia, in Latin America, and draw attention to the very difficult and innovative measures needed for the integration of AIDS and family planning programmes (Vernon *et al.*, 1990).

The most immediate programme design response needed to expand the application of the quality framework is the blurring of the sharp boundaries that donors and country planners put around "stand alone" family planning projects. When such projects are conceived around a single product, they reinforce the absurdity of interpreting choice, information and other elements of service satisfaction in terms of single projects, rather than in terms of country programmes. Another response will be to make a qualitative description of national family planning situations a necessary supplement to the quantitative information obtained from KAP-type surveys. This will enable the various elements of quality to have a more rewarding application, and truly integrated national programmes could be designed. The associated research response would be to move Operations Research (OR) away from the narrowly manipulative confines of a single programme to more diagnostic baseline studies, realigning programmes to serve the integrated reproductive needs of the population.

CONCLUSION

In effect, this paper adopted the six elements of family planning service quality in order to discuss service delivery in the wider societal context that contains health care seeking behaviour (of which family planning forms a part). Also briefly discussed were the implications of taking service delivery beyond the confines of health institutions, and assessing national family planning programmes, instead of individual projects. The prospects for fertility transition in the sub-region will depend on the extent to which concerns for family planning service quality are translated into compre-

hensive national programme improvement. Only in renovating the current patchwork pattern of family planning service delivery in the sub-region can countries change the abysmally low levels of contraception that characterise them.

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ABSTRACT

Rapid fertility transition in Africa is likely to be derived from an improvement of coverage and quality of family planning services. Apart from patchy services provided from static health units, the postpartum, the community based distribution (CBD), the work-place clinic and the social marketing approaches have been tried in pilot schemes. The paper discusses the relevance of the six elements of service quality within and outside the static units.

The choices open to people as they commute between modern and traditional health systems is much wider than is possible within static units. The style and content of communication between providers and clients in such units also do not form an adequate basis of informed choices. The range of contraceptives draw on both technical competence of providers and responsibility of clients. However, the static programmes dwell on provider competence needed for delivering a few methods and largely ignore the issue of client competence in the adoption of some readily available methods.

Relationships between providers and clients in static units are complicated by differences in social background and, at times, by level of indiscipline displayed by tenured health workers. The avenues for adequate follow-up and assurance of user satisfaction are much better in outreach programmes than in the static units. And the variety of service delivery methods available in any one area, and at any one stage in the reproductive life of the user, is much more likely to be derived from a mixture of static and outreach programmes. The methods for the design, implementation and monitoring of such a mixture are also discussed.

Infertility in Sub-Saharan Africa*

Akam EVINA**

The phenomenon of pathological infertility in sub-Saharan Africa is often overlooked due to the attention given to early signs of declining fertility. However, pathological infertility is widespread in some regions of the continent, notably in Central Africa¹. If infertility drops in these regions, a temporary rise in fertility may occur. Thus, measuring and understanding the factors and evolution of infertility is necessary to understand the past, present, and future dynamics of fertility, as well as to conceptualize family planning programs in Africa, particularly in regions affected by infertility.

First, we will discuss the concept and the measurement of infertility. Then we will consider the determining factors of this phenomenon and, subsequently, its evolution in sub-Saharan Africa.

INFERTILITY: CONCEPT AND MEASUREMENT

Understanding infertility in Africa has long been constrained by the lack of adequate data and because there was no singular, agreed upon definition.

The concept of infertility

The concepts used to discuss infertility vary according to whether one approaches it from a medical or a demographic orientation. The medical approach bases the definition of infertility on three essential observations: the

* Translated by Charlotte Eyerman.

** Institut de Formation et de Recherche Démographiques, IFORD, B.P. 1556, Yaoundé, Cameroun (Institute of Demographic Education and Research).

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¹ Modern contraception is still not widely practiced in all sub-Saharan African countries. For this reason, voluntary infertility remains marginal and the infertility that we observe is nearly exclusively pathological.

capacity to conceive, the ability to carry the product of conception to a live birth, and the survival of the live-born child². Definitions that stem from the demographic approach to infertility apply, depending on the case, to the following different events that happen throughout the woman's or the couple's reproductive life: live births, still births, spontaneous or induced abortions³.

This article focuses on the demographic approach to infertility. *Infertility will be defined as the absence of a live birth for a woman, a man or a couple during a given period of time. Primary infertility will apply to individuals of procreating age who have not yet had a live birth. Secondary infertility will apply to individuals who, having had at least one live birth, have not had any more since a given interval of time. Not having a live birth during the first years of union (five years, for example) will be called initial infertility (of the wife or the couple).*

One of three principal factors explains the absence of a birth for a couple, a man or a woman: sterility (the inability to conceive or to impregnate), fetal mortality (miscarriages, abortions, still-births) and non-exposure to the risk of conception. Therefore, the terms "sterility" and "infertility" are not equivalent, since the former is more narrowly defined than the latter. Taking this into account, the demographic approach to infertility outlined here only addresses sterility indirectly. The interchangeability of the two terms can only be determined at the end of a woman's reproductive life. If primary infertility lasts until the end of a woman's reproductive life, it will be called *total infertility*. But it will only be called definitive sterility if the woman has never been pregnant throughout the course of her fertile life.

Indicators of degree of infertility

As we have proposed elsewhere (Akam, 1990), if we rely on evidence of the absence of live birth during a given period of time, then we can define several indicators of infertility in a population:

- the rate of initial infertility (RII) measures the proportion of women (or couples) who have not yet had a live birth during a given interval of time after entry into union (or becoming a couple);
- the rate of primary infertility (RPI) is the proportion of women who have not yet had a first live birth at the observation date;
- the rate of secondary infertility (RSI) refers to the proportion of women who, having already had at least one live birth, have not had any more during a given interval of time;

² The World Health Organization (W.H.O.) defines infertility as the inability to conceive; the inability to carry the product of conception to a live birth is called an unproductive pregnancy and the non-survival of the child is called infant mortality (O.M.S., 1975, p. 6).

³ Louis Henry (1981) provides a good definition for this demographic approach to infertility: "Fertility and infertility refer to reproductive performance rather than capacity, and are used according to whether there was actual childbearing or not during the period under review." (L. Henry, 2nd ed., trans., Etienne van de Walle, p. 79).

— the rate of combined infertility (RCI) corresponds to the proportion of women with no live births during a determined time period.

Combined infertility (or recent infertility) is a combination of primary and secondary infertility. The relationship between the corresponding rates is:

$$RCI = RPI + RSI (1 - RPI)$$

Generally, primary sterility affects about 2% to 5% per generation in a population (Leridon, 1982). In some societies, however, factors tied to sterilizing diseases and associated with behaviors of people fertile age can lead to a major rise in infertility if specialized treatments are not available. This is what we see in many Central African societies and more rarely in some regions of East Africa and West Africa (the Bobo of Burkina Faso, studied by Retel-Laurentin, 1979).

DETERMINANTS OF INFERTILITY

A process that can lead to infertility

The lack of a live birth for an individual or a couple can be voluntary or involuntary. The socio-cultural environment in which people live can accentuate certain constitutive elements of infertility by promoting behaviors that encourage it.

For example, in "neo-malthusian" societies, the practice of modern contraception (and in some cases abortion) expresses the will of individuals or couples to remain or to become infertile by controlling their biological capacity to conceive. On the contrary, in most societies of sub-Saharan Africa, high fertility is both an individual and a collective aim. Thus, neo-malthusian behaviors do not explain the high infertility level that we see in some populations. Rather, this essentially involuntary infertility sets off a reaction of "hypernatalist" behaviors in order to overcome a deficit in the number of births. Actually, in places where involuntary infertility is linked to the preponderance of sterilizing diseases, couples' behavior is marked by fear of sterility, and subsequently, by the pursuit of fertility. The variables that reflect pro-natalist attitudes include behaviors that maximize fertility (polygamy), that preserve chances for fertility (very early marriage for young girls), and that pursue motherhood (conjugal mobility).

Infertility, then, depends on three types of behaviors. If it is voluntary, it depends primarily on neo-malthusian fertility control (the practice of contraception). If it is involuntary – essentially caused by sterilizing or abortive disease – it largely depends on reactive hypernatalist behaviors which include the search for effective therapeutic solutions, matrimonial strategies, and conjugal mobility. Finally, migratory patterns influence infertility to a certain extent. By separating spouses, migration determines periods of non-exposure to the risk of conception for married people. However,

it encourages extra-marital relationships and increases the risks of contamination by a sterilizing or abortive disease. This analytic schema is summarized by Figure 1.

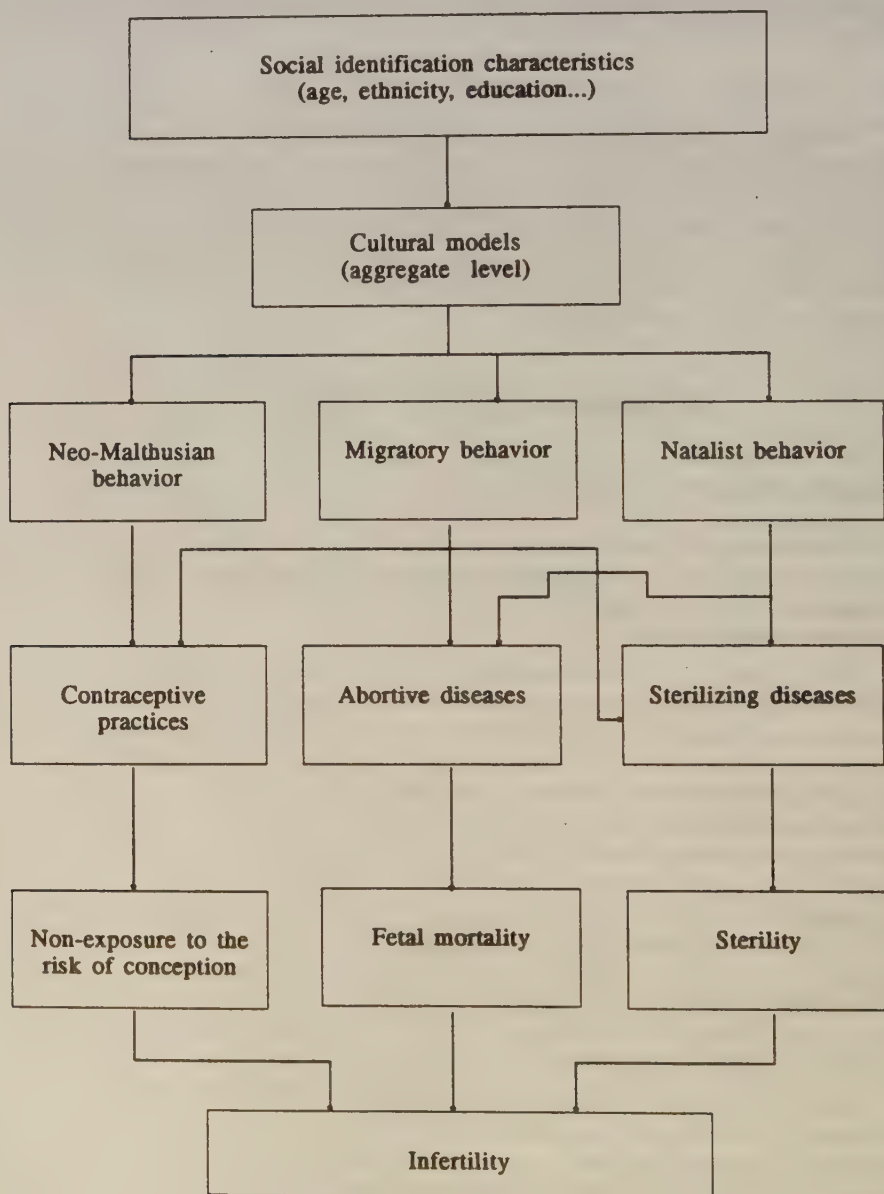


Figure 1
Analytic schema of infertility

The pathology of infertility in sub-Saharan Africa

Infertility in sub-Saharan Africa in general and in Central Africa in particular is essentially pathological in origin. Diseases which are likely to lead to infertility can be classified by three general groups:

- sexually transmitted diseases (S.T.D.),
- other genital diseases,
- and general diseases.

Table 1
Diseases linked to infertility

STERILIZING DISEASES	ABORTIVE DISEASES
1. Preventable diseases	
Sexually transmitted diseases (S.T.D.)	Sexually transmitted diseases (S.T.D.)
— gonorrhoea (gonococcic)	— syphilis
— chlamydia infection	
Infection after delivery	Other diseases and infections
Infection after abortion	— malaria
	— toxoplasmosis
	— bilharziasis
Genital tuberculosis	
Goiter	
2. Unpreventable diseases	
Endometriosis	Certain congenital anomalies of the uterus and the cervix
Ovulation problems	Hormonal problems

Source: adapted from Sherris and Fox, 1984.

Recent studies on infertility have demonstrated that we must make the distinction between sterilizing diseases and abortive diseases (Table 1). Sterilizing diseases lead to sterility (the inability to conceive or to impregnate), for they make fertilization impossible. Abortive diseases cause fetal mortality (miscarriage, abortion, still-birth).

The *sexually transmitted diseases* that lead to infertility in sub-Saharan Africa are mostly venereal diseases (gonorrhoea and syphilis) (Retel-Laurentin, 1974). Recently, the sterilizing effect of chlamydia infections has been discovered and their incidence continues to rise in countries that have high infertility.

Other genital diseases often occur in women, resulting either from infections following abortion or childbirth, or from genital tuberculosis. Abortions or deliveries carried out in unhygienic conditions can cause infections that potentially lead to infertility, acquired sterility or sub-fertility if

improperly treated. Genital tuberculosis is most often accompanied by infertility and amenorrhea among women (O.M.S., 1975). The few rare clinical studies conducted in sub-Saharan Africa demonstrate that genital tuberculosis has a relatively low etiological significance for infertility.

General diseases with an explicit or a suspected relationship to infertility do not necessarily localize in the genitals. The most frequently cited are bilharziasis, malaria and goiters. Genital bilharziasis are located in the bladder and can infect the uterus. For this reason, they are suspected to be responsible for abortions in the regions where they occur endemically (Retel-Laurentin, 1974). Malaria contributes indirectly to fetal mortality. In an unprotected woman, fetal development can be disturbed and premature labor can be triggered (O.M.S., 1975). However, the effect of malaria on infertility has not yet been established. Areas of sub-Saharan Africa where goiters occur are most often zones that also evidence infertility. But, without reliable data, it is difficult to evaluate the relationship between endemic goiters and infertility in the regions affected by both phenomena.

Table 2 summarizes how certain diseases contribute to infertility in terms of its two primary components: sterility and fetal mortality.

Table 2
"Cause and effect" relationship and degree
of contribution of some diseases to infertility

Diseases	Cause and effect relationship		Degree of contribution	
	Sterility	Fetal mortality	Sterility	Fetal mortality
Gonorrhea	Well-established, direct	None	Potentially significant	None
Syphilis	None	Well-established, direct	None	Potentially significant, but usually low
Tuberculosis	Well-established, direct	None	Apparently low	None
Abortive or puerperal infections	Well-established, direct	None	Potentially significant	None
Obstetrical difficulties	Indirect, (secondary sterility only)	Direct and indirect	Potentially significant	Potentially significant
Other local or genital infections	Low and rare correlation	Many established	Minimal	Apparently low

Source: adapted from O.M.S., 1975.

Influence of factors linked to "natalist" behaviour on infertility

Beyond the pathological aspect of infertility in sub-Saharan Africa, the relationship between disease and infertility also depends largely on the population's life-style and behavior, especially when "natalist" behaviors are adopted to fight against potential infertility.

Let us take up the commonly advanced hypotheses on the links between infertility and its direct determinants on one hand, and the primary variables of "natalist" behaviors on the other hand. All of these variables are tied to marriage patterns of the populations concerned.

Age at first union

In most sub-Saharan African countries marriage is still early and almost universal. Therefore, women remain exposed to the risk of conception for the duration of their fertile life. The risk of infertility increases with age on one hand because female fecundity diminishes with age⁴. On the other hand, it goes up due to increased exposure to the risk of contracting a venereal, post-partum, or post-abortive infection or illnesses or health problems that affect the ability to have a child. Even though the relationship has not yet been clearly established, it seems that the age at first union does play a role in the infertility level.

In a French infertility study, H. Leridon (1982) remarked that the inability to procreate or an abnormally long waiting period can be attributed to late marriage or to trying to have a first child at an advanced age. Logically, therefore, one would expect that a woman who marries very young would have high fertility until the end of her reproductive life. This seems not always to be the case, however. Studies on previous or contemporary populations have shown that women who marry very young (under 17) experience a drop in their reproductive capacity. These women seem to have fewer children at the end of their reproductive life than those who marry at an older age (Tabutin, 1982). In the case of the Nzakara of the Republic of Central Africa, age at first marriage and conjugal mobility appear to be essential factors of infertility (Retel-Laurentin, 1974).

In most populations with low fertility or high infertility, women marry very young. But their fertility on the whole remains abnormally low. In

⁴ Even though a recent study in France strongly suggests that female fecundity diminishes abruptly around the age of 30 (Fédération des centres d'études et de conservation du sperme humain [CECOS]/Federation of Centers for the Study and Conservation of Human Sperm; Schwartz and Mayaux, 1982), most specialists in this problem admit that this sudden drop happens after age 35. In particular, a study on two populations with "natural" fertility, not affected by abortion (25 French communities of the 17th and 18th centuries and a Hutterite society of the early 20th century) demonstrates that the natural drop in fecundity is not appreciable before 35 years of age (Bongaarts, 1982a, 1982b). The data from the World Fertility Survey (WFS) also suggests that the risk of infertility goes up much more dramatically between the ages of 35 and 39 than at any earlier age (Sherris and Fox, 1984, p.14).

Zaire, Sala Diakanda (1988) observed that, in spite of very early marriage, less prolific ethnic groups are characterized by a late average age at the first delivery and by slightly longer intervals between successive births. Relying on the results of his study of a village in the Maroua region (extreme northern province of Cameroon), De Backer⁵ estimates that there is a relationship between a young age at first marriage and infertility.

Therefore, a young age at first marriage may contribute to infertility. In effect, as stated by Retel-Laurentin (1974), "the risk of having an abortion could be statistically higher before 19 years of age" (translated by us). There are two ways to interpret these abortions. On one hand, we can consider that women who marry young are exposed to pregnancies that they cannot carry to term because of their physical immaturity, which leads to the possibility of an abortive infection and subsequent infertility. On the other hand, contact with venereal diseases can explain some of the abortions at very young ages and the early acquired sterility in populations with high infertility. Some of the doctors with whom we discussed this subject⁶ unanimously agree that salpingitis, and venereal salpingitis (gonorrheic and syphilitic) in particular, contracted at young ages (15-17) markedly increase risks of acquired sterility, fetal mortality and low fertility later in life.

Conjugal instability and matrimonial mobility

"The more women run, the fewer children they have"
(Nzakara saying, Republic of Central Africa)

This saying from one of the contemporary populations most affected by infertility sums up the link we see between conjugal mobility and infertility, for infertile women are also the most unstable. In general, conjugal instability is common in sub-Saharan Africa and broken unions are numerous (Kaufmann *et al.*, 1988). But, instability is particularly pronounced in African societies that produce few children. In many regions with infertility, divorces are frequent, as are remarriages⁷. Furthermore, most authors studying this problem agree, for they recognize the connection between conjugal instability, conjugal mobility and infertility (as well as low fertility)⁸.

⁵ In addition to his work at Maroua's Provincial Hospital, Dr. L. De Backer, of the Belgian cooperation in Cameroon is presently conducting a study on the causes of sterility in a Fulani group (Peulh) near Maroua.

⁶ Among the doctors we met and who support this hypothesis we can mention in particular Dr. A. Maheus (W.H.O., Geneva, Switzerland), Dr. H. Van Balen (Institute of Tropical Medicine, Antwerp, Belgium), and Dr. L. De Backer (Provincial Hospital of Maroua, Cameroon).

⁷ We must note that this observation is not only limited to specific infertile societies in sub-Saharan Africa. In effect, according to Kaufmann *et al.*, among women from six countries who participated in the World Fertility Survey (Cameroon, Ghana, Kenya, Lesotho, Senegal and Sudan), 60% of those who had experienced a broken union ended up remarrying before the age of 50. This proportion is 92% for Senegal only (Kauffmann *et al.*, 1988, p.224.). Similarly, a study of the Peulh Bandé in Senegal led to the following conclusion: "After a union ends, remarriage for women is systematic and also very fast" (Pison, 1988, p.256, translated by us).

⁸ We can cite, for example A. Retel-Laurentin (1974), O. Frank (1983) and many census reports and African studies from the 1950s and the early 1960s.

Though the relationship between infertility and conjugal mobility has been described well (Caldwell and Caldwell, 1983), the causal relationship that links the two phenomena has not always been interpreted well. It has long been held that infertility was due to "sexual licentiousness" (which is how outside observers refer to the high degree of conjugal mobility in some societies). Relying on thorough epidemiological studies and on personal acquaintance with infertile people she interviewed, Retel-Laurentin has demonstrated that the relationship was the inverse. It is more likely that the residual existence of sterilizing diseases in a population leads to a high degree of conjugal mobility. After several years of marriage, men and women without a child leave seeking a fertile partner. In turn, this behavior contributes to the spread of sterilizing and abortive diseases.

So, the "quest for a child" is a major reason for conjugal instability among infertile couples. The childless woman will be repudiated by her husband who seeks for a more fertile spouse, or will break up the marriage herself to find a spouse who can give her a child. In this case, infertility is a cause of divorce (as Retel-Laurentin reports in regard to the Nzakara), but it also appears to be the consequence of high conjugal mobility. It must be underscored that infertility, in contributing to the risks of breaking up a union, leads to periods of celibacy between two marriages (Retel-Laurentin, 1974).

Finally, conjugal instability can considerably reduce the length of the union and consequently, the duration of exposure to the risk of conception. Retel-Laurentin remarked that infertility among the Nzakara is also linked to the brevity of unions. In the case of the Fulani of Cameroon, one of the ethnic groups most affected by infertility, 53% of women divorced after less than four years of marriage and more than a third (35%) after less than two years in 1964 (Podlewski, 1966). *An infertility study of these unstable women must therefore take into account not just the number, but the duration of their unions, as well as the fact that the relationship between infertility and matrimonial mobility is symmetrical.* But this information is incomplete unless we also take into consideration the type of union.

Types of union

The type of union (monogamous or polygamous) affects fertility. *On the individual level*, polygamy increases male fertility⁹. As for women, "according to the studies, it seems in general that at the same age, wives of polygamists have on average fewer children than wives of monogamists" (Pison, 1988, translated by us). Even in polygamous unions the fertility of the first wives is generally higher than that of the other co-wives. But, the lower fertility of women in polygamous unions at the time of the study can be explained by the kind of women who marry a polygamist. Often,

⁹ According to Retel-Laurentin, "polygamy promotes masculine fertility" (Retel-Laurentin, 1974, p. 125). According to a survey conducted in Senegal (in Dakar and in Thiès) by L. Thoré in 1964, men cite their desire to have numerous progeny as the primary reason for polygamy (Retel-Laurentin, 1974, p. 93).

widows and sterile or infertile divorcees who would like to remarry have no other choice than to enter into polygamous union. Similarly, there is a strong likelihood that the monogamous husbands of infertile or sub-fertile women will become polygamous. *On the collective level*, however, "polygamy encourages rather than reduces the average fertility of a population (Pison, 1988, translated by us), for "available" women can easily find a partner and all men, whatever their marital status are theoretically "marriageable." *In this way, polygamy will be a natalist institution in some populations.* We can then ask if sub-Saharan African societies that show infertility or low fertility are more polygamous than the others.

Some African societies with high levels of infertility are characterized by a large proportion of polygamous marriages, but they are not typical of these populations (Frank, 1983). The aforementioned study by G. Kaufmann *et al.*, demonstrates that polygamy is more prevalent in West Africa than any where else in sub-Saharan Africa. Now, West Africa is also among the sub-regions of sub-Saharan Africa where infertility is lowest. Consequently, polygamy in sub-Saharan Africa is not only unique to infertile or sub-fertile populations.

On the individual level, *the relationship between infertility and polygamy can be seen in two ways.* On one hand, in an environment where venereal diseases abound, we can blame polygamy for increasing the risk of infertility by the contamination and the spread of sterilizing or abortive diseases, for extra-marital relations can lead to a system of spending the night with different co-spouses. On the other hand, it may be that a significant age difference between spouses lead to reduced fertility among women in polygamous unions¹⁰. In this case, *polygamy will be a source of sub-fertility.*

INFERTILITY LEVELS AND TENDENCIES IN SUB-SAHARAN AFRICA

Recent data on fertility demonstrate that the current level of infertility in sub-Saharan Africa is going down even though regional variations persist. The general tendency is a decreasing level of pathological infertility.

¹⁰ Few studies have been interested in the influence of the husband's age on the woman's fertility. The studies that were carried out on earlier populations reveal that the age of the husband only has significant effect on fertility after 50 years of age (Bideau and Perreaud cited by Charbonneau, 1980, p. 1114; Houdaille, 1976, p. 968). For these same populations, H. Charbonneau underscored that the influence of the husband's age on fertility must be negligible in most populations. It only plays a role among couples who have an age gap of at least 10 or even 15 years (Charbonneau, 1980, p. 1116). In contemporary populations of sub-Saharan Africa, it was established as of the demographic survey on Cameroon of 1960-1965 (South East region) that a too young or especially a too old husband leads to lower fertility for the wife. Romaniuk also suggests that a cause of sterility could be that polygamous husbands tend to be significantly older (Romaniuk, 1961, p. 24). Finally, the fertility study based on the data collected by the Ngayorhème laboratory in Senegal ultimately attributed the lower fertility of polygamists' wives to the higher age of their husbands and to the lower fecundity of older men (over 50 years in particular) (Garenne, Van de Walle, 1989).

Levels and tendencies

On the whole, infertility is on the decline everywhere in sub-Saharan Africa, and particularly in regions that were hardest hit by this phenomenon. In Zaire, for example, the results of the EDOZA study of 1975-76 revealed an unprecedented drop in infertility in the Western region of Zaire (Republic of Zaire, volume 3, 1978). According to study's report, one of the explanations for this drop might be the decline in sexually transmitted diseases. In Cameroon, infertility has been on the wane since the end of the 1960s (Evina, 1990). The most recent data of the Demographic and Health Surveys (DHS) confirm this tendency toward dropping infertility. The improvement of sanitary conditions could be responsible for this drop. However, the results of the recent Republic of Central Africa census seem to contradict the general tendency toward lower infertility in the sub-region, perhaps because of less effective campaigns against sexually transmitted diseases.

Regional variations

Research conducted on infertility since just before African independence and during the course of the 1960s (Romaniuk, 1961 and Retel-Laurentin, 1974) has shown that there are major variations in sub-Saharan African infertility. We generally observe a low incidence of infertility in West Africa and in East Africa, even though it remains very high in Central Africa. Southern Africa has an intermediary level. Recent data (Frank, 1987; Reports of the World Fertility Survey) express that regional variations persist (Table 3). The results of the last African censuses and those of the Demographic and Health Surveys (DHS) confirm once again these regional variations of infertility in sub-Saharan Africa (Table 4).

Studying other forms of this phenomenon reinforces the particularity of Central African infertility compared to other sub-regions (Table 5). We notice as well that all forms of infertility are higher in Central African countries (represented here by Cameroon) than anywhere else. In particular, Cameroonian women have more difficulty than other having a live birth during the first years of union.

Though primary infertility remains limited to the sub-region of Central Africa, secondary infertility affects all of sub-Saharan Africa with the exception of a few rare countries like Rwanda.

Until now, an important question has gone unanswered: What can explain this major incidence of infertility in Central Africa? Many reasons have been proposed that mainly reassert the pathological character of infertility in sub-Saharan Africa in general, and in Central Africa in particular (Retel-Laurentin, 1974, 1978, 1979; Republique du Zaïre, 1978; Hénin, 1981; Frank, 1987). But, the rapid rise of diseases responsible for infertility in Central Africa may have been encouraged by the social organization of some of the sub-region's populations (Caldwell and Caldwell, 1983) or by

Table 3
Total population, infertility and loss of children due to infertility
in 22 sub-Saharan African countries in 1980

Sub-regions and countries	Population (millions of inhabitants) in 1980	Proportion of women 45 years and over without a live birth	Reduction of the Total Fertility Rate
West Africa			
Nigeria	90.0	8.3	0.6
Ghana	11.7	2.6	0.0
Ivory Coast	8.0	9.9	0.8
Burkina Faso	6.9	5.9	0.3
Mali	6.9	7.7	0.5
Senegal	5.7	4.0	0.1
Niger	5.3	8.9	0.6
Guyana	5.0	6.0	0.3
Central Africa			
Zaire	28.3	20.5	1.9
Cameroon	8.4	14.7	1.3
Chad	4.5	11.0	0.9
Central African Rep.	2.3	17.3	1.6
Congo	1.5	20.5	1.9
Gabon	0.5	32.0	3.2
East Africa			
Sudan	18.4	8.7	0.6
Tanzania	17.4	10.4	0.8
Kenya	15.9	6.7	0.4
Burundi	4.1	3.0	0.0
Southern Africa			
Mozambique	10.5	13.8	1.2
Angola	7.1	11.5	0.9
Zambia	5.8	14.0	1.2
Lesotho	1.3	4.1	0.1

Source: adapted from Frank, 1987.

the social disorganization that followed colonization (Bethune, 1987). Owing to the lack of studies and of reliable data for this sub-region, it has been impossible to determine until now the mechanisms that led to high infertility of Central Africa. It seems necessary to look historically at these populations to explain the spread and the on-going presence of sterilizing diseases. This is the path taken by Retel-Laurentin (1979) for Nzakara country. It would be useful to follow this example by improving collection methods and measurement instruments and by developing multi-disciplinary studies in which doctors, sociologists, historians and demographers work together to improve our understanding of this phenomenon.

Table 4
Primary infertility at 45 years and over in 9 sub-Saharan countries having participated in the "Demographic and Health Surveys" program

Countries	% of women 45 years and over without a live birth	Year
Ghana	1.6	1988
Liberia	2.6	1986
Mali	3.1	1987
Senegal	5.2	1986
Togo	2.9	1988
Cameroon	10.3	1991
Kenya	2.8	1989
Uganda	5.3	1988/89
Zimbabwe	3.4	1988

Source: Study Reports DHS.

Table 5

Rate of combined (RIC), initial (RII), primary (RPI) and secondary (RSI) infertility for 100 women aged between 15 to 49 years and having been in union for at least 5 years. Six sub-Saharan countries

Countries	RIC*	RSI*	RPI*	RII*
Cameroon (1978)	38.1	30.7	10.7	26.0
Ghana (1979-80)	27.8	26.1	2.5	10.7
Senegal (1978)	27.7	24.7	4.0	12.7
Kenya (1978)	23.5	21.5	2.6	10.4
Rwanda (1983)	16.6	15.5	1.3	5.9
Lesotho (1982)	33.8	30.8	4.4	13.1

Source: Evina, 1990.
 * The period chosen for calculating the rates is five years.

CONCLUSION

Infertility still plagues sub-Saharan Africa. In most Central African countries, one women in six – even one in five – reaches the end of her fertile life without having brought a child into the world. The infertility rate is even higher in some sub-populations of the region. This absence of progeny does not result from choice, for it is most often involuntary and pathological in nature. It is experienced painfully on the individual and the collective level. Infertility is lower in Southern Africa and comparatively low in West Africa and East Africa. However there are still men and women hoping for a first birth or a subsequent birth to satisfy their desire to be

parents. We cannot say often enough that for these men and women, infertility is an illness and they only ask to be cured.

At a moment when we worry about demographic growth in Africa, when we investigate the beginnings of the transition from fertility and the ways to encourage it, we must take into consideration this dimension of African reality that involuntary infertility represents. If not, we risk misunderstanding the dynamic in play and the expectations of the population. "Control" of fertility by couples supposes in effect that a choice can be made. For the most part, this choice is non-existent for couples who suffer from infertility or pathological sub-fertility. Further, it is unlikely that the option to limit progeny could be accepted in regions where fear of infertility is omnipresent. For a fertility control project to be envisioned, the populations concerned must be freed of the psychological shackles represented by the persistent threat of infertility. To be accepted by populations and to be effective, it is therefore of primary importance that family planners propose not only spacing methods and stopping fertility, but also services that aim for "infertility control".

Moreover, it is important to recognize that pathological infertility – at least in populations where it frequently occurs – is a factor that limits the level of effective fertility. In these regions, a successful fight against pathological infertility will be accompanied by a brief rise in fertility (Dyson and Murphy, 1985). This seems to be the pattern in most of the regions hit by a significant level of infertility.

However, in some segments of the population, it is possible that infertility has gone up because of a growing reliance on abortion, particularly in urban environments. Voluntary interruption of pregnancy done in bad conditions can cause infections, thus leading to infertility, sterility or sub-fertility. To prevent the increasing reliance on clandestine abortions, family planning programs must be adapted to the populations and their expectations.

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ABSTRACT

Infertility in sub-Saharan Africa represents the "hidden face" of "high African fertility". The attention given to signs of declining fertility leads to the negligence of high pathological infertility in some African regions. This article develops several methodological approaches to the analysis of infertility. It is concerned in particular with the signs, determinants and definitions of infertility. Furthermore, it addresses the influence of certain behaviors on the incidence of infertility. Finally, it discusses current levels and regional variations in sub-Saharan Africa based on the most recent available data for the region.

Women's Groups and Contraceptive Use in Rural Kenya

Charles R. HAMMERSLOUGH*

The transition from high and uncontrolled fertility to low and controlled fertility is an historical process that is complete in Europe and North America, in progress in most parts of Asia, Latin America and the Middle East, and just beginning in some areas of sub-Saharan Africa. The time scale of transition appears to be more compressed the later the transition begins – on the order of a century for Europe, generations for Asia and Latin America, and perhaps only decades for sub-Saharan Africa if recent trends in countries such as Zimbabwe, Botswana, and Kenya continue and spread to the rest of the continent.

During a decade of continent-wide economic downturn and crisis, Kenya's contraceptive prevalence climbed from 7% in 1978, to 17% in 1984, to 27% in 1989; period Total Fertility fell from 8.1 births per woman in 1973-78 to 6.7 in 1985-89 (Njogu, 1991). Regional differentials became evident: in 1989 contraceptive prevalence was 40.5% in the Central Kenyan highlands, and 11.5% in Western Kenya, the Lake Victoria basin (National Council for Population and Development, 1989).

In sub-Saharan Africa, Lesthaeghe (1989) and Shepherd (n.d.) suggest that women's groups might be an important local-level organization to build legitimacy for family planning programs, and an intermediary for Western cultural influence. In rural Kenya, the local women's self-help groups speed the diffusion of the idea of fertility limitation and knowledge of contraceptive means, as well as increase the economic autonomy of women within the household and the community.

This paper introduces and tests hypotheses which connect fertility behavior with these intermediary organizations. It focuses on participation in women's groups in Kenya as a determinant of differential fertility behavior. The dependent variables are primarily the knowledge and use of contraception. The primary independent variables are membership in local

* Population Studies Center, University of Michigan, 1225 South University Avenue, Ann Arbor, Michigan, 48104-2590 USA.

women's groups at the individual level, and the actual activities of women's groups in the community.

The analysis is based on three data sources: 1) the 1989 Kenya Demographic and Health Survey (KDHS), a single-round, nationally representative retrospective fertility survey of 7,150 women (National Council for Population and Development, 1989); 2) the 1989 Kenya Community Survey (KCS), a closed-ended group interview survey conducted in 260 of the rural sample clusters used in the KDHS (Hammerslough, 1990); and 3) 13 open-ended group interviews with informal women's groups (5 in Nairobi, 4 in Western Kenya, and 4 in Central Kenya), conducted in February and March 1991. Quantitative analysis of the linked KDHS and KCS surveys provides formal tests of the hypotheses – which qualitative insights from the women's group interviews helped to generate.

The article consists of two parts. The first part examines the mechanisms by which the women's groups are likely to participate in the evolution of fertility behaviors. More particularly, it considers the diffusion of contraception. These hypotheses are discussed in the second part in terms of results of surveys carried out in Kenya.

WOMEN'S GROUPS AND FERTILITY REDUCING BEHAVIOR

Women's Groups As a Fundamental Aspect of Social Organization in Kenya

Women's groups were and continue to be a fundamental aspect of community social organization in Kenya from before colonial times to post-independence. Traditionally, every adult belonged to an age-set of peers who were initiated at the same time; age-mates are mutually responsible for other age-mates through life. They would succeed through well-defined social statuses, often marked by specific ritual: young motherhood, oldest child initiated, grandmotherhood, elderhood. Age-sets cut across lineage lines as an integrative social structure, and served to socialize youth and allocate social control roles (Nelson, 1984). Gikuyu women had a custom, *ngwatio*, of helping one another collectively with hoeing and weeding (Davison, 1989), and *matega* described the collection of firewood for a woman who had just given birth (Stamp, 1975-76). Similar customs existed in Western Kenya (LeVine, 1979), the Coast (Strobel, 1976; Mirza and Strobel 1989), indeed throughout sub-Saharan Africa (Lesthaeghe, 1989; Wipper, 1984).

Women's groups were transformed and adapted for different purposes (primarily economic and political) during the colonial period. Christian missions often provided the impetus, sometimes because of competing groups set up by other Christian sects (Wipper, 1977, p. 111). Others, such as the Kikuyu Central Association later became the seedbeds of nationalism, and

were banned. The most important religiously-based set of organizations in Kenya is Mother's Union, which conducts a wide range of activities, including taking care of the church and its members, and income-generating activities. The most important single organization, however, is *Maendeleo Ya Wanawake* (Progress of Women), founded by settler women in the 1950s, and modeled after the British Women's Institute. Membership in Maendeleo grew explosively (Wipper, 1975), clearly tapping a real need. Maendeleo registers both women's groups and individuals directly. The early curriculum emphasized hygiene and home sciences, such as washing babies, first aid, sewing, and cooking. Later, many groups ventured into income generating and social welfare projects. The breadth and extent of participation in these activities is described below. Another mutual assistance group type for women are *mabati* groups, which are building societies, originally started to help provide iron roofing (Monsted, 1978). Modern groups draw on traditional forms of social organization. For example, the word *matega* now means a members' collection to give a big lump sum to a member for house or farm improvement (Stamp, 1975-76).

Women's self-help groups are fundamental elements of Kenyan local social organization. Their help is sought (and bought) by local politicians to bring out the vote; banks recognize their officers as account signatories. They generate market opportunities for rural women through income generating activities and the pooling of resources. As local grass-roots organizations, they also have a high level of legitimacy – founded, built, developed, and controlled by rural women.

Women's Groups, Diffusion of Western Values and Knowledge of Contraception

Participation in women's groups and the existence in the community of active women's groups (for non-participants) could both motivate fertility-reducing behavior and increase the means by which women can control their fertility through contraception. The diffusion and the legitimization of new behaviors are essential mechanisms which relate participation in women's groups to an increase in the motivations and the means of fertility control¹.

The groups bring together women from diverse geographic, cultural and social backgrounds. They participate as well in the circulation of information, overcoming the socio-cultural barriers that structure the general society.

Women's groups are a mediating organization between the center and rural areas, and are a means for women to come together in a way that allows them to participate in the market economy. They allow women to hear about what their neighbors and friends have experienced, from those

¹ Caldwell (1982) underscored the role of cultural diffusion providing an alternate, specifically Western, image of the organization of family life, one with high prestige. Our framework extends and specifies an application of Caldwell's theory by focusing on local social organization as the medium of diffusion.

they trust, and have likely known from childhood. Many women's groups, as voluntary associations in the rural Kenyan setting, have particular strength because they cut across lineage or clan-based local social organizations (a particular church, sect, or school is often identified with one lineage in rural Kenya). These horizontal links are valuable because they can draw on the knowledge and skills of a wide network of contacts, as represented by the different members.

A women's group member commented that cross-cutting groups are more stable:

[We] have experienced mixing together is good, because we get an idea and different culture from different people and then they work together. Because we have experienced one ... of these clan groups, they don't stay for long, they break very quickly ... [We are stronger] because ... we elect officials from different areas and different cultures. (Western Kenya)

The person receiving a message from a source with similar values and background is more likely to believe and to remember. They can ask questions in their own language of a person known from childhood. In discussing who the best person to do family planning program training of women's groups should be, women's groups felt it should be one of their own members:

You see we are women who are born in this community. We know, I know her problem right from youth up to where she is now. Now if this one went there and came back to tell me, she will not look big because she has been away. She will just be my friend; she can explain better. (Nairobi)

Women's groups also participate in the legitimation of new behaviors. They present themselves as mutual aid societies: places for discussion and trust that counsel, encourage and support the woman to take initiative.

In fact, people in rural Kenyan society intensely and continually evaluate their own and others' behavior. Having the knowledge and approval of your women's group for doing an unusual behavior like using family planning is reassuring, and reduces the psychological costs. Women will not risk innovative behaviors unless they feel there is some community of support for them, particularly in Kenya, where there is a cleavage between the husband and wife in decision-making spheres. A woman's friends, age-mates, and clan are important potential supports.

Women's groups provide a "cover" of other activities if a field worker comes to discuss family planning:

... when you just go and advertise that we are having a family planning meeting, no man will want their wife to go.... but when you are a women group, you are doing something else apart from family planning and if the family planning topic comes in, so that every woman who goes home will first persuade the husband (as she knows how well to persuade the husband) so that they join the family planning. (Nairobi)

Knowledge of Western ways is particularly important in facilitating attendance at family planning clinics. A rural Kenyan woman, who may be illiterate, does not know what to expect in a government health clinic,

how much it will cost, how the staff will treat her and touch her, the hours when it is open, whether her husband will find out, etc. More likely than not, she will be too shy to ask, afraid of losing face or being treated without dignity by the staff (often a justified fear). She can find out all of these things from other women in her community (credible and trusted sources). They form a support network that can go with her and tell her what it will and does feel like.

Women's groups are a forum for discussing their problems with paying for education, feeding children, and inflation, all of which form part of the current discourse on reasons for limiting family size in Kenya. Hearing her neighbors' and friends' problems is a highly credible and relevant vicarious experience which accelerates and reifies the decision-making process.

Women's Groups and Social Insurance

A major activity of women's groups is helping one another in times of crisis (Appendix Table 2). Crises can be sickness, payment of school fees (Davison, 1989, p. 132) or unexpected expenses such as funerals, bribes to officials, or losses through theft. In these cases, the group may take up a collection, give food, or volunteer their labor. Women's groups can function as mutual aid societies to make sure that everyone in the group or the community has enough food to eat, "decent" furniture and household goods, and some money to pay school fees. Such aid is given in a way that maintains the dignity of the recipient and her family.

According to a woman in Central Kenya:

If one of the women in our group got sick, we would help her by going to her *shamba* and cultivating it, fetching firewood and water and anything else that people in her homestead were missing. It was a group of women that helped each other. (Davison 1989, p. 50)

Two charitable customs practiced by women's groups make this point clearer. The first is the "tea party". The leader of the group may go to one of the poorer members of the group or in the community, and tell her that the group would like to give a tea party in her honor. Because it is in her honor, she says, the group will take care of everything, so that the recipient need not lift a finger at her own party. On the day of the party, members of the women's group will bring sugar and tea-kilos of it. The group will bring cakes, chairs, a tea-set, tablecloths, a burner, fuel, and a pot for the water. At the end of the party, the leader may announce that it would be too much trouble to take all of these things. In this way, the recipient receives help from the community in a way that maintains her dignity. Another custom practiced by the women's group is the "merry-go-round". Every month the group will pool their earnings and buy a present for one of the members, usually a household good like a tea-set, comfortable chair, or cooking pot, and have a meeting at the member's house. Sometimes the justification for doing so is that the member will have the facilities to host future group meetings. The next month, the group buys the item for another

member, until everyone in the group has a tea-set, etc. Then they decide which item they will go on to.

Certain activities developed by the groups belong to an insurance system for old age which is likely to mitigate the deficient financial help from children. In this way, they contribute to change the value and economic expectations placed on children, and subsequently, the objectives of fertility.

To an extent, women's groups redistribute income from younger women to older women. A woman invests her effort and time over the years in a women's group with the implicit understanding that she can call on them when she is in need.

Women's Groups and Economic Autonomy

Many women's groups function as economic self-help groups to directly improve the economic status of members by earning money. Activities include hiring their labor out on men's or non-members' farms, working as a trader's cooperative, making and selling handicrafts², agricultural products, and raising poultry or livestock. This group participation in the monetized, Western-style economy challenges male monopoly on access to this economy, and increases women's decision-making power within the household. In 1989, 49% of women want no more children in Kenya (National Council for Population and Development, 1989). Women are more likely than men to want to restrict their fertility. If they have money they are more likely to have the means to do so. Women have more knowledge and economic resources to count on in negotiating fertility decisions with their husbands and kin.

Some groups are set up as informal, limited-liability stock corporations. One typical group in Central Kenya operates in the following way: members join by buying one or more shares, which cost 2,000 Kenya Shillings (about \$100, a large sum of money). Every month, the group decides what it needs to purchase that month, how much it will cost, and levies the charge on members depending on how many shares they own. The meeting also decides when women will contribute work together. In this way, income-generating projects such as stores, bars, lodgings, and rural busses have been constructed by and run by women's groups. At the end of the year, the group decides how much to retain for the next year's projects, and divides up the profits to give each member a "Christmas present"³.

The increased economic status of women through their own efforts affects fertility through both cultural and economic pathways. It legitimates women's participation in the Western-style monetized economy and its institutions. After they reach a certain size, women's groups are eligible to be

² Woven sisal bags with leather straps, called *kiondo*, are a Kenyan export popular in Western countries. Most are made by rural women's groups.

³ Sometimes the women's group is in direct competition with male-owned stores or other enterprises. I collected three separate anecdotes in which store owners had organized thugs to loot newly-stocked women's group projects or to vandalize posho mills. Women's groups are often politically visible and important actors in the local power structure.

registered for government aid under the Ministry of Culture and Social Services (MCSS), and if they have enough money, to open a bank account. They choose officers themselves, in keenly contested elections (Shepherd, n.d.). They proudly keep careful account books, membership rosters and visitors' logs. The chairlady, in my observation, is likely to be an older literate woman, and the secretary is likely to be younger, literate and fluent in English and Swahili.

The economic importance of women's groups is that they demonstrate the potential value of women's time outside of childrearing – it enables them to earn money with less personal risk than they would have as individual entrepreneurs. This may take some pressure off men to provide money for school fees, costs, and supplies. The economic benefits of women's group participation make husbands more supportive:

The husband at home, when he sees you coming with a kilo of sugar, he is [more] happy than [you] coming bare-handed.

He knows she is going to come back with maybe a kilo of meat ..., so he won't be very difficult to let you do your work. (Western Kenya)

Women's groups create opportunity and the self-confidence which comes from greater economic autonomy. It makes women less dependent on their husbands to provide use-rights to land in exchange for higher fertility because they are more able to purchase food through the market for themselves and their children if necessary⁴.

The ability of a women's groups to deal with outsiders reflects the cultural importance of its status as a credible institution in the larger economy and the world (Shepherd, n.d.). The chairlady's job is to speak for the group and to represent them. To group outsiders, the secretary can readily give a stylized oral chronology of the group, in which several elements are common: the year the group was founded, how many members there were at the beginning, the monthly or annual dues charged, the year they were registered with MCSS, the year they opened their first bank account, and which projects were undertaken in each year, and their plans for the future⁵.

⁴ As a woman in Central Kenya states: "The group has been important to me, because now that I am a widow I can only depend upon myself, and the group helps me get what I need." (Davison, 1989, p. 133)

⁵ This is the chronology of a women's group in Western Kenya:

We were founded in 1980 with 7 members, but have now grown to 30 members. Each contributes 20 Shillings per month. We started, and continue with, pottery and handicrafts. With our first profits, we bought a cow, and in 1982 we bought a goat as well. In 1983, we were engaged in maize trading, and 1984 we started a tree planting nursery, which still continues. In 1985, we paid KShs. 1,700 to be given a sewing machine and training in sewing for three of our members. Either the project failed, or the promoters were connen who disappeared after taking our money. That year we had a loss of KShs. 2000/=. In 1987, our cows gave birth to 4 calves, and in 1988 we paid KShs. 300/= to become members of Kenya National Farmer's Union (KNFU). KNFU was supposed to help us get credit, but nothing much came of it. In 1989, we finally opened a bank account and started a poultry project. In 1990, we continued with poultry, rented land and sold the produce we raised on the land. We also sold 2 cattle. We are selling pots to pay for veterinary medicine for our cows because two recently died due to sickness. We bought a plot with the money from the cows we sold, although we still owe KShs. 2000/= (1/2 the price). Also, in 1990, the Ministry of Health dammed a local spring, at our request, to provide better water for ourselves, our cows, and for our pottery.

Women's Groups and Fertility-Reducing Behavior: Operational Hypothesis

We have examined the ways in which women's groups are likely to promote the diffusion of behaviors that restrict fertility and three factors have been identified: diffusion of Western values and knowledge about contraception, social insurance, and economic autonomy. According to these mechanisms, we can expect that women who participate in these groups distinguished themselves from the rest of the population by greater knowledge of contraceptive methods, by more frequent discussion of family planning with their husbands, and of course, by more frequent use of contraception. It seems probable, too, that members of economically-oriented groups relied more often on contraception than members of other groups.

If women's groups play a role in the evolution of reproductive behaviors, it is above all among their members. However, the presence of active and visible women's groups in the community should affect other women of the community, too. They learn about Western ideas and values through their network ties of friendship or lineage to women's group members. Just the knowledge that some women in the women's group are using contraception can open an important "possibility space" that this is acceptable behavior, and thereby reduce the potential psychological costs of their own use. It is probable that the impact of women's groups on women who are non-members is even more significant if the association is economically-oriented and relatively economically strong. Because non-members are hypothesized to be affected indirectly through their network ties with members, we can also assume that non-members are more likely to have network ties to members in communities where a greater proportion of women are members.

The role of women's groups in the knowledge and the utilization of contraception is therefore significant not only on the level of group members, but also on the level of non-members who belong to communities where women's groups are prevalent. Now we will present the data in order to test the hypotheses against the facts.

DATA AND RESULTS

Women's Groups: Participation and Activities

Two surveys carried out in Kenya provide the quantitative data on participation in women's groups: the Kenya Demographic and Health Survey, a nationally-representative fertility survey, and the Kenya Community Survey, which was designed to supplement the KDHS with information on community-level characteristics, including the presence and activities of different types of women's groups.

Participation in Women's Groups in Kenya: the KDHS Data

The Kenya Demographic and Health Survey interviewed 7,150 women of reproductive age in 1988-89 (National Council for Population and Development, 1989). As a part of the DHS program, it is a single-round cross-sectional fertility survey which collects little information on the institutional or social context of respondents' fertility decisions. Nevertheless, a country-specific question was added to the Kenya questionnaire to evaluate participation in women's groups⁶.

Figure 1 shows the English text of the women's association question on the Kenya survey. The four categories of women's association proposed as responses were retained after the pre-test.

Figure 1

Women's association question on the Kenya Demographic and Health Survey, 1989

150	To which women's organisation or association do you belong?	Maendeleo ya wanawake.....1 Mothers' union or any other religious associa- tion.....1 Local womens' group/welfare ass. ...1 Other.....1 (specify) None.....1
	Circles codes for all organizations mentioned	

Since this is the only question about women's groups, participation in women's group is probably only partially captured by the KDHS survey. It is likely that women who report membership in women's groups are a self-selected subset of all members. In particular, they are likely to be more active and involved with the group, and are more likely to identify their interests with it⁷. Comparison of the survey results with the statistics provided by the Women's Bureau of the Ministry of Culture and Social Sciences

⁶ The "B" model questionnaire of DHS calls for including a country-specific question on membership in women's associations in the background variables section (Institute for Resource Development, 1987). The commentary justifying its inclusion states: "In certain countries, different organizations to which women belong are vehicles for the communication of ideas and information about family planning." (p. 10). Of the 12 surveys fielded in sub-Saharan Africa 1986-89, 4 included some form of the question on women's associations (Kenya, Uganda, Togo, and Ghana). The question is dropped from the project's Phase II "B" Questionnaire (Institute for Resource Development, 1990). Because it is country-specific, the question is neither described nor analyzed in the standard First Reports on each survey.

⁷ In effect, the phrasing of the question forces a respondent to guess whether whatever groups she may be a member of should also be defined as an organization worthy of mention to the interviewer. The social context of the DHS interview as a formal speech encounter under conditions of asymmetrical power may well discourage reporting of membership in informal or traditional groups (Cicourel, 1974). The interviewers were trained to interpret the woman's response, but not to probe. In particular, a woman was recorded as a member of Maendeleo ya Wanawake only if she explicitly mentioned her personal membership.

(MCSS)⁸ suggests that the data are relatively reliable, however. (See Appendix Table 1)

The DHS finds in most districts a greater proportion of women who are members of women's groups than the MCSS. Overall, the MCSS estimates capture only 72% of the prevalence of women's groups that are reported in the DHS. In summary, the DHS data can probably be considered a reliable, if not very precise, indication of membership among women who are strongly committed to participation in women's groups.

Even though they are probably under-estimated, the KDHS results attest that there is a fair amount of participation in women's groups in Kenya (Table 1). About one-third of women reported themselves members of a women's group on the Kenya DHS. In the 11 KCS sample districts, which are all rural, membership prevalence was over 40%. Membership in Maendeleo ya Wanawake appears to be severely under-reported, given the size and influence of the organization. This may have been due to the suspension of Maendeleo's operations at the time of the survey's fielding, and continuing uncertainty over its future. Unlike the other types of groups, Maendeleo membership is reported higher in urban than rural areas, which is particularly odd given its rural origins and nominal orientation (Wipper, 1975; Anonymous, 1989).

Table 1
Percent of women reporting membership in women's group, by type: Kenya Demographic and Health survey, 1989

Type of group	In Kenya	In KCS sample districts
Maendeleo ya Wanawake	3.5	2.4
Mothers' union or other religious association	16.3	21.5
Local women's group or welfare association	17.2	24.3
Other women's organization	1.6	1.8
Any women's group	33.0	41.7

The prevalence of membership by selected background characteristics (Table 2) shows that women's group members tend to be older, high parity, and less likely to have attended secondary school. Rural women are more than twice as likely to be women's group members.

Women's Groups Activities: the KCS Data

Information on women's groups in respondents' communities come from the Kenya Community Survey (KCS), documented in Hammerslough (1990). The KCS was designed to supplement the KDHS data with infor-

⁸ The statistics provided by the MCSS are administrative. They only count the officially registered associations, so they provide a minimal indication of participation in women's groups.

Table 2
Proportion of women who are women's group members,
by selected background characteristics:
Kenya Demographic and Health Survey, 1989

	Percent who are members of any women's group
<i>Age</i>	
15-19	11.4
20-24	20.8
25-29	31.7
30-34	41.2
35-39	51.5
40-44	54.7
45-49	57.8
<i>Education</i>	
None	36.2
Primary	34.3
Secondary+	25.9
<i>Residence</i>	
Rural	36.4
Urban	17.0
<i>Parity</i>	
0	11.9
1-2	23.6
3-5	38.3
6+	51.7
<i>Total</i>	33.0

mation on community organizations and their characteristics. Data were collected in structured group interviews in 24 KDHS rural clusters in each of 11 administrative districts⁹. Each KDHS cluster, used as a proxy for communities, is a geographically contiguous area of approximately 150 households¹⁰.

The questionnaire, administered to a panel of adult residents of the community (both men and women), collected information available on women's groups which would be known to any long-term resident. The questions were repeated for each of the four types of groups pre-coded on the DHS questionnaire: Maendeleo ya Wanawake, Mother's Union, Local Women's Group, and Other Women's Organizations.

For each of the four types of group, if it existed in the community, the panel described its activities, how often it met, how far away it is, whether they use a building for their activities, and whether the group owns

⁹ The survey conducted a total of 271 interviews, including 11 for reliability testing. See Hamerslough (1990) for details.

¹⁰ In a given small area of rural Kenya, holdings are fairly homogeneously spread across the land, with trading centers having relatively little permanent non-agricultural population. KDHS clusters are contained within the smallest administrative division, called a sub-location. Governmental interaction with women's groups is on this and higher administrative levels. Local people know the boundaries of their sub-locations and identify themselves to some extent with this administrative sense of "community". Thus it is a crude, but adequate, proxy for the local women's group environment.

the building. The objective of these questions was to characterize the women's organizations in the community across three dimensions: existence, diversity and content of activities, and strength.

Virtually all communities reported at least one women's organization, with a mean of 2.8 different types, out of a possible 4. Table 3 shows that Mother's Union and Local Women's Groups are most prevalent, with 90% and 88% of clusters reporting their presence, respectively. These types report the most different activities, as well. The last rows of the table show women's groups classified by the first activity reported. Mother's Union is the only type of group which is not predominantly oriented toward economic self-help. Maendeleo ya Wanawake groups are the most likely to own their own building.

Table 3
Characteristics of four types of women's group in rural Kenya:
Kenya Community Survey, 1989

Characteristic of women's group	Type of women's group			
	Maendeleo Ya Wanawake	Mother's union	Local women's group	Other women's organization
Percent of cluster reporting presence of type of women's group	43.8%	90.0%	87.5%	56.8%
Mean number of activities	2.3	3.1	2.6	2.2
Mean number of monthly meetings	3.5	4.2	3.2	3.0
Percent of type of women's group which own their own building	14.7%	6.2%	6.5%	4.1%
Distribution of groups classified by first activity mentioned:				
Economic	65.4%	20.0%	56.3%	57.0%
Social welfare	30.9%	36.9%	41.2%	39.0%
Ritual	3.7%	43.1%	2.5%	4.0%

Appendix Table 2 reports the breadth of activities in which groups engage and the classification system used below. This analysis classifies women's groups as economic self-help, social welfare, or ritual, depending on the first activity reported. These categories are broad enough so that there is a high correlation between the classification of first and subsequent activities mentioned.

Women's Groups: Contraceptive Use and Knowledge

Hypotheses and Method

The first part of the article discussed the mechanisms by which women's groups are likely to promote the diffusion of contraception. These mechanisms affect women participating in associations through the diffusion of Western values and knowledge of contraception, social insurance and economic autonomy. They can also reach non-members by means of relationship networks that unite them with members of associations or because of the significant economic weight the group structure has on the local level.

Thus, six hypotheses can be advanced:

Members:

1. Women's group members are more likely to be using contraception than non-members.
2. Women's group members are more likely to discuss family planning with their husbands than non-members.
3. Women's group members have greater knowledge of contraceptive methods and sources of supply than non-members.
4. Women who are members of economically-oriented (i.e. as evidenced by their actual activities in the community) women's groups are more likely to be using contraceptives than members of other types of groups.

Non-Members:

5. Non-members of women's groups who live in communities with active economically-oriented women's groups are more likely to be using contraceptives than non-members in communities without such groups. The strength of this hypothesis will be correlated with the proportion of women in the community who are members of women's groups (a proxy for the density of local network ties).
6. Non-members of women's groups who live in communities with active economically-oriented women's groups have greater knowledge of contraceptive methods and sources of supply than non-members in communities without such groups. The strength of this hypothesis will be correlated with the proportion of women in the community who are members of women's groups (a proxy for the density of local network ties).

The following section describes the data against which these hypotheses are formally tested.

The six operational hypotheses can be tested with the KDHS data on individual women, as supplemented by the Kenya Community Survey by means of multivariate regressions. The following variables are known to

be related to contraceptive use and knowledge, so they are entered into the equations as control variables: age, parity, education, and urban or rural residence. In brief, the results for the control variables are consistent across all of the regressions. Use and knowledge of contraceptives rises with age in Kenya to a peak at age group 35-39, and falls at higher ages. This pattern reflects the rapid cohort-based adoption of contraception in recent history in Kenya. Use and knowledge rises with parity up to about parity 4, but not much thereafter, and rises dramatically with increasing education of the woman. All things being equal, rural women are less likely to use contraceptives and know fewer sources of supply (Table 4).

Participation in Women's Groups, Contraceptive Use and Knowledge (Hypotheses 1-4)

Table 4 shows the results of multivariate regressions to test the hypothesized direct effects on members of women's groups (statistically significant ($p < .05$) coefficients are marked with asterisks).

Against the background of the control variables, the results of the regression confirm the first three hypotheses advanced: women's group members are more likely to be current users of contraception (33% greater odds ratio); they are also more likely to have discussed family planning with their husbands, and know more methods of contraception and sources of supply.

Hypothesis 4, that the presence of more economically-oriented groups in her community should increase a woman's likelihood of using contraceptives, receives support from the last column of Table 4. The KCS collected information on 4 different *types* of group. For each economically-oriented group, her log partial odds ratio increases by .17. In other words, a woman's likelihood of using contraception is increased by 18% if there is one economically-oriented group, by 39% if there are two, up to a limit of 4 groups. This effect is independent of her own membership, which increases her likelihood of using by 44%. Somewhat unexpectedly the presence of ritual-oriented (mostly church groups) is associated with lower probability of contraceptive use. The social insurance mechanism hypothesis does not receive support from this regression because the presence of social welfare-oriented groups has no discernible effect on the probability of contraceptive use.

Presence of Women's Groups and Diffusion of Contraceptive Use and Knowledge at the Community level

Women's groups are hypothesized to have an indirect effect on non-members in the community through diffusion *via* their network ties to women's group members. Table 5 presents regressions on the sample of rural women living in KCS-surveyed clusters who did not report themselves to be members of women's groups on the KDHS. It includes a constructed

Table 4
Direct effects hypothesized for members of women's groups

	Hypothesis 1	Hypothesis 2	Hypothesis 3	Hypothesis 3	Hypothesis 4
<i>Dependent variable</i>	Whether current user	Whether discussed FP with husband (3 or more/1 or 2 times/never)	Number of methods known spontaneously (max.9)	Number of method sources known (max.8)	Whether current user
<i>Regression form</i>	Logistic	Ordinal logistic	OLS	OLS	Logistic
<i>Intercept (intercept 2)</i>	- 3.51*	- 2.81* - 1.39*	.11*	1.64*	- 4.19*
<i>Age</i>					
15-19	0	0	0	0	0
20-24	.43*	.07	.55*	.88*	.43*
25-29	.58*	-.05	.81*	.99*	.37
30-34	.94*	-.08	.91*	.96*	1.00*
35-39	1.10*	.05	1.04*	1.08*	1.16*
40-44	.88*	-.25	.69*	.53*	1.02*
45-49	.69*	-.18	.64*	.48*	.64*
<i>Parity</i>					
0	0	0	0	0	0
1-2	1.06*	.75*	.67*	.99*	.96*
3-5	1.39*	1.31*	.96*	1.20*	1.41*
6+	1.35*	1.35*	.98*	1.28*	1.30*
<i>Education</i>					
None	0	0	0	0	0
Primary	.73*	.97*	.97*	1.22*	.81*
Secondary+	1.34*	1.81*	2.12*	2.44*	1.48*
<i>Residence</i>					
Urban	0	0	0	0	
Rural	-.28*	-.08	-.34*	-.52*	
<i>Membership in a woman's group</i>					
Non-member	0	0	0	0	0
Member	.29*	.36*	.27*	.64*	.36*
<i>Nb of types of groups classified with first activity</i>					
Economic					.17*
Social welfare					.02
Ritual					-.23*
<i>Sample</i>	Complete DHS	Currently married	Complete DHS	Complete DHS	All women in KCS clusters only (rural)
<i>Unweight.N</i>	7150	4756	7150	7150	3731

* Statistically significant, $p < .05$.

Table 5
Indirect effects hypothesized on non-members of womens' groups

	Hypothesis 5	Hypothesis 6	Hypothesis 6
<i>Dependent variable</i>	Whether current user	Number of methods known spontaneously (max.9)	Number of method sources known (max.8)
<i>Regression form</i>	Logistic	OLS	OLS
<i>Intercept</i>	- 4.78*	-.53*	1.12*
<i>Age</i>			
15-19	0	0	0
20-24	.52*	.36*	.75*
25-29	.68*	.74*	1.03*
30-34	1.14*	.61*	.65*
35-39	1.52*	1.02*	1.19*
40-44	1.16*	.43*	.24
45-49	.62	.24	-.10
<i>Parity</i>			
0	0	0	0
1-2	.84*	.64*	1.17*
3-5	1.13*	.96*	1.27*
6+	1.10*	1.02*	1.50*
<i>Education</i>			
None	0	0	0
Primary	.97*	.85*	1.00*
Secondary+	1.47*	1.84*	1.95*
<i>Nb of types of groups classified with first activity</i>			
Economic	.19*	.21*	.23*
Social welfare	.02	.19*	.17*
Ritual	-.13	.19*	.30*
<i>Proportion of women in cluster who are members of women's groups</i>	1.16*	-.01*	-.82*
<i>Sample</i>	Non-members women in KCS clusters only (rural)	Non-members women in KCS clusters only (rural)	Non-members women in KCS clusters only (rural)
<i>Unweighted N.</i>	2216	2216	2216

* Statistically significant, $p < .05$.

contextual variable, community prevalence, which is a proxy for the density of network ties. The first column estimates that each economically-oriented women's group in the community increases the partial log odds ratio of using contraceptives by .19, or the odds ratio if there is one group by 21%, by 46% if there are two types of groups with such activities; the number of social welfare or ritual oriented groups have no statistically discernible

effect. Hypothesis 5 also suggests that the prevalence of women's group membership in a community increases the density of network ties to non-member women. The analysis supports this suggestion: a 10% difference in membership prevalence translates to $\exp(1.16 \cdot 10\%)$, or 12.3% greater likelihood that a non-member will be a contraceptive user.

The presence of any type of woman's group increases slightly reported knowledge both of contraceptive methods and sources of supply (on the order of .2 or .3 methods or sources). Unexpectedly, greater prevalence of membership in the community decreases the reported number of known sources of methods. The effect is small, however: an increase of 25% in membership would lead to an estimated decrease of knowledge of .2 methods.

The results of the three regressions reported in Table 5, taken jointly, imply that the *behavior* of using contraceptives is more responsive to network ties than to the presence of women's groups, with the partial exception of economically-oriented groups. *Knowledge*, however, is more related to the presence of any type of woman's group, and less to the prevalence of membership in the community. Self-selection of more knowledgeable women into the woman's group would attenuate the estimated effect of membership prevalence as a proxy for density of network ties. Non-members in communities with relatively high membership would be selected for low knowledge, thus biasing against the expected network effect.

CONCLUSION

The study of the determinants of fertility essentially rests on two types of variables. On one hand, there are individual variables concerning women (education, age, contraceptive knowledge and practice, and marital, professional and residential status). On the other hand, there are macro-social variables, such as health-care and family planning structures, dominant modes of production, and kinship systems.

Between these two ways of analyzing the evolution of fertility, it is necessary to make more room to study the influence of variables concerning community structures in which social practices are worked out in everyday life. This is what we have done here. The results obtained with the Kenyan data reveal a domain of study to be developed. It is even more important because it can lead to concrete proposals to promote women's associations which, in all probability, will have a major impact on the practice of family planning.

Appendix Table 1

Comparison of the proportion of women who are members of a women's group from MCSS figures and reported on the DHS, 1989: Ministry of Culture and Social Services 1989 Registry (unpublished), and Kenya Demographic and Health survey, 1989

<i>District</i>	Women's groups members per 1000 women 15-49		Ratio of MCSS to DHS
	MCSS	DHS	
Murang'a	161	369	0.44
Kirinyaga	316	405	0.78
Nyeri	282	403	0.70
Kilifi	78	103	0.76
Machakos	268	513	0.52
Meru	252	442	0.57
Kisii	89	350	0.25
Siaya	743	570	1.30
South Nyanza	192	392	0.49
Kericho	413	301	1.37
Uasin Gishu	223	184	1.21
Bungoma	159	346	0.46
Kakamega	172	357	0.48
<i>Provinces</i>			
Nairobi	81	158	0.51
Central	297	349	0.85
Coast	148	100	1.48
Eastern	313	491	0.64
Nyanza	233	398	0.59
Rift Valley	262	261	1.00
Western	175	340	0.51
Kenya	237	330	0.72

Note: The district-level DHS figures are subject to high sampling variance due to relatively small number of underlying observations. Population denominators for the MCSS figures are based on Central Bureau of Statistics district population estimates adjusted to 1979 age structure.

Appendix Table 2

Percentage of women's groups engaging in different activities, by activity and type of women's group: Kenya Community Survey, 1989

Activity classification and description	Type of women's group			
	Maendeleo ya Wanawake	Mother's union	Local women's group	Other wo- men's or- ganization
	%	%	%	%
Economic				
Bee-keeping	2.4	.8	4.1	4.8
Building or buying property for leasing	.6	.8	1.2	.7
Co-operative purchasing or other economic activities	3.4	4.6	15.8	6.9
Doing work to raise money for organization	4.3	19.6	18.9	17.2
Farming land they own or lease	.4	.0	.0	1.4
Handicraft manufacture	10.3	9.8	11.7	3.7
Handicraft selling	5.6	4.3	5.1	1.5
Leasing shops or land they own	4.1	2.2	3.3	1.0
Money-lending	6.7	13.8	39.9	21.2
Operating a posho mill	5.4	2.1	3.7	1.1
Operating or building a shop	6.0	2.4	4.7	1.2
Poultry or livestock raising and/or selling	11.7	6.6	15.9	8.5
Other economic	2.4	1.5	2.0	.2
Social Welfare				
Building dams or other water projects	2.4	1.2	4.2	3.7
Forming other women's groups	1.2	.0	.0	.0
Helping women who have given birth	.5	2.1	2.7	1.1
Helping orphan children	.0	4.1	.3	.0
Helping members build houses, including making mud bricks	3.4	8.8	16.5	5.4
Helping to educate children from poor families	.4	1.2	1.7	2.7
Helping needy members of the organization, including those who are poor or sick	10.6	67.4	33.3	15.5
Helping members with farming, including planting and harvesting	6.8	10.4	23.4	13.5
Soil conservation, including building terraces and planting seedlings	2.9	3.7	10.7	6.2
Teaching members how to cook	2.8	3.5	1.4	1.3
Teaching family life, including family planning	1.7	2.1	.0	.0
Other social welfare	.0	3.7	2.2	.0
Ritual				
Helping conduct or raise money for funerals	0	2.9	.6	4.9
Social events, such as singing or dancing together	2.5	41.0	4.6	1.3
Taking care of the church	.4	56.2	2.3	.4
Other ritual	.0	1.4	.0	.0

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ABSTRACT

This paper investigates the relationship between membership in voluntary women's associations and contraceptive use in rural Kenya. It argues that women's groups mediate between individuals and Western-style institutions, which include the government, the monetized formal economy, and family-planning providers. It hypothesizes that women mobilize economic and knowledge resources and reduce the cultural costs of using contraception by participating in women's groups. Using individual-level fertility survey and community data, supplemented with group interviews, it evaluates this argument by analyzing the relationship between the existence, strength, and activities of women's groups and individual contraceptive use. Results are that women's group members are 33% more likely to be current users of contraception than non-members, controlling for age, parity, education, and urban-rural residence. Non-members who live in areas with strong economically-oriented women's groups are more likely to be contraceptors, too.

Thoughts on the Course of Fertility Transition in Sub-Saharan Africa

Helen WARE*

The evidence for the commencement of fertility transition across sub-Saharan Africa is certainly far from conclusive. For a small number of countries, predominantly in Southern Africa, there is reasonable evidence of the beginning of fertility decline (i.e. Botswana, Zimbabwe, Kenya, South Africa – all races). For others such as Nigeria and Senegal the evidence is so limited and methodologically questionable that it may yet prove to be deceptive. There has been very little discussion of data quality issues. Indeed people's belief in DHS data is close to religious. Yet it is already known that DHS data suffer from some misplacement of dates of birth associated with a questionnaire design which encouraged interviewers to backdate recent births. It would be very reassuring to have at least one independent data source to verify the apparent fertility decline for each country. Given the nature of the data, it is highly understandable that Europeans should be even more skeptical than others (Cleland, Locoh, this volume).

Nevertheless there is strong agreement that fertility has started to decline (at least in Southern Africa and Kenya) and that this decline will continue. It is likely, however, that the decline may have some stepwise elements, since declines below four surviving children per women will be of a different nature to the start of the transition. In traditional sub-Saharan Africa, for religious reasons, replacement fertility would imply the replacement of all four grand-parents by each child and not just the replacement of the two parents.

The great value of the studies presented here lies in the richness of their coverage of cultural diversity. In reading the wide range of information on cultural variations in the definition, perception, and sharing of the costs and benefits associated with childrearing the impossibility of applying any one simple model is undeniable (Donadje and Tabutin; Isiugo-Abanihe;

* Australian International Development Assistance Bureau, GPO Box 887, Canberra, Act 2601, Australia.

The views here expressed do not necessarily represent those of AIDAB.

Bledsoe; Vimard, Guillaume and Quesnel; Makinwa-Adebusoye this volume). There is clearly no way of saying that a single stage of national development will be reached at which it will be possible to say that "inter-generational wealth flows have now reversed, flowing henceforth from parents to children; and therefore, fertility decline is inevitable". However, the national data do suggest that it might be possible to implement the usage of modern contraception (the majority of usage would be solely for birthspacing, close to a quarter of all sexually active women) at which point fertility decline would be assured. Such an approach appears to be more likely to succeed than an attempt to define any constant relationship between child mortality and the onset of fertility decline (Barbieri, this volume).

Rather than an unprofitable attempt to summarise the rich cultural tapestry of data presented here, this review will focus on a small number of highly practical issues which should be followed up.

IS AFRICA DIFFERENT?

Reading about Asia or Latin America it is impossible to avoid repeated admissions that Africa is indeed different (Casterline, Guzman, this volume). It is not a case of Africa following, albeit at a slower pace, a path already trodden in the West or by other developing countries. The evidence for Africa already shows a number of distinctive and even unique patterns.

One of African demography's many distinctive features is the extent to which sexual behavior and fertility occur and are accepted outside of marriage¹. Although traditional mores have imposed limits, especially on the sexual behavior of women, and successive waves of missionaries have spread guilt and prohibitions, in sub-Saharan Africa, unlike in Europe or in Asia, there are very few traditions which classify sexual activity as either inherently sinful or as weakening to the body or the mind.

Another distinctive element in the African experience has been the speed and the extent to which contraception has been adopted for birth-spacing, rather than for immediate limitation of family size. Elsewhere, contraception first took hold among those who hoped that they had completed their family building, and hence, the relatively high acceptability of irreversible methods. In Africa, women have been willing to make the leap (one of considerable faith for those with limited education) to adopting modern contraception, simply to space births, not primarily to limit them. This is a significant indicator of the importance which women attach to remaining sexually available in the post-natal period, essentially to ward off the risk of their husbands looking outside of marriage or taking an additional wife (the traditional alternative being prolonged post-natal

¹ For this reason demographic surveys which exclude adult women on the grounds of their marital status are simply unrealistic as are surveys which ignore abortion as a birth control method.

abstinence). Hence the vital importance of the use of survey instruments adapted to African cultural conditions, which clarify the context of contraceptive practice in relation to issues such as the modernization of post-natal taboos and the role of polygyny. Rwanda is distinctive in not having a post-natal taboo, but rather occasions where ritually intercourse is prescribed, notably after the fall of the umbilical chord and at the arrival of the first tooth - a cultural factor associated with exceptionally high fertility (Locoh, this volume). Given that over the majority of the continent the common belief is that post-natal abstinence is necessary to stop semen from 'spoiling the mother's milk' remarkably little has been done to promote the specific use of condoms in this context.

Contraceptive prevalence rates of over 40% of wives under 45 are compatible with the clear majority of contraceptors intending to have more children in future (Cleland, Mhloyi this volume). However, the question remains whether women who have begun to practice contraception in to place of post-natal abstinence, will either deliberately or inadvertently postpone the next birth until it never occurs. In this context there is a special need for information on rural contraceptive practice among less educated women. The spread of modern contraception, especially in anglophone countries, makes the question of desired family size exceptionally cogent. Available national level data suggests a strong, positive relationship between rising contraceptive prevalence and declining numbers of children desired (Cleland, this volume) Yet, across anglophone Africa there are women with five surviving children, even five surviving sons who deliberately cease using contraception in order to have a sixth child. This too-little studied behavior is not a phenomenon found elsewhere in the world.

Breastfeeding and birth spacing are understandably of greater saliency to women than to men. While Donadje and Tabutin (this volume) provide very valuable insights into male perspectives on the issue of family size (which has more direct impact on men), the context of South Benin is markedly pronatalist (in part for very sound economic reasons), and contraception promoted or practiced by men has yet to receive adequate attention.

We sometimes forget that demography, a discipline rooted in the European cultural setting, is most readily adaptable to a nuclear family model and it often needs consistent remodification in order to fit a broader more extended kinship or lineage based society. In the African context, it is vitally important to be constantly aware of the range, variety and flexibility of family definitions and strategies (Isiugo-Abanihe, Bledsoe, this volume). Africans who become demographers always carry with them a special consciousness of the gap between the highly complex reality of the family structures from which they come and the limited neatness of the demographic models with which they work. Many of these complexities relate to societies where women and men and even wives and husbands, face very different cost-benefit calculations for children (Donadje and Tabutin, this volume). Polygyny is complex enough without the often present mixture breakdowns and the formation of new unions. In so far as women do calculate the probable net benefits of child-rearing, they also have to

factor in different levels of support from a male partner who may form a range of additional unions (creating resource competition from other women and their children). Most Western models regarding the costs of children, however sophisticated, assume a stable parental couple. Similarly, it is an over-simplification to assume that African farmers (male or female) share a common perception of the benefits of numerous progeny, regardless of the form of agricultural production or the demand for the crop (Vimard, Guillaume and Quesnel; Mhloyi, this volume). In Africa, it is still possible to find plantation and other farming contexts in which parents can see direct, positive economic returns from maximizing the number of their descendants.

One issue which concerns educated Africans across the continent is whether it is possible to have modernization without Westernization: a "modern African synthesis". On the political front this is an issue which has re-emerged with some urgency following the apparent demise of African socialism and of many 'one-party' democracies. On the demographic front, the question is whether the many caring virtues of the African extended family can be preserved in an urban setting of declining fertility. This is not simply an issue of inter-generational wealth flows, but also of how far the boundaries of the family are perceived as extending. On the face of it, fosterage is a traditional institution which might be expected to disappear with modernization (Bledsoe, Isiugo-Abanihe, this volume). Instead, it has been modified to suit the new conditions, rural children being placed with urban relatives to secure the educational advantages available in town, and providing, in return, domestic and child-minding services to their foster-parents. Alternatively, young children from poor urban families may be sent home to provide company for rural grandparents and to lessen the financial burden on town parents.

AIDS

In the past, Africa was unique in possessing a well-recognised and widespread infertility zone, well in advance of any deliberate attempts at fertility limitation. This infertility belt, the consequence of sexually transmitted diseases and infections following births and miscarriages in highly insanitary surroundings, could potentially provide a rise in fertility as health and sanitary conditions improve (Evina, this volume). It is difficult to avoid wondering about the possible behavioral connections between this longstanding zone of infertility in central Africa and the current spread of AIDS. Sadly, it would appear that the sexual behavior patterns which promoted the spread of the earlier sexually transmitted diseases will play the same role in the transmission of HIV. This applies not only to the traditional inception of female intercourse from a very young age but also to the physiologically damaging practice of "dry sex", with the natural lubricants being deliberately removed wherever possible...

Today, it is impossible to think of the demographic future of Africa without considering the potential impact of the spread of the AIDS epidemic. The rate and extent of that spread essentially depends upon two factors. One is the infectivity of the virus – and the likelihood of its transmission for each sex with every act of unprotected sexual intercourse (for AIDS in Africa is very largely spread by heterosexual intercourse). The other factor is the pattern of sexual relationships. Given that male promiscuity is almost universally accepted as the norm in Africa (although the Benin survey found that 41% of males are opposed to extramarital sexual relations when formally questioned, Donadje and Tabutin this volume, Table 20) then the remaining concerns revolve around female behavior, and the extent to which women can protect themselves from the consequences of their husbands' indiscriminate extramarital adventuring. Brouard (1994)² suggests that the solution lies in lessening the traditional age gap between spouses (which averages approximately a decade). This strategy will only work however, if men are monogamous in their sexual relations and practice the "zero grazing" recommended by the Ugandan anti-AIDS campaign. In the West, a woman whose husband is known to be HIV positive would have the choice of insisting on the use of condoms and the practice of safe sex or of abstaining altogether from sexual relations with him. In Africa, even when information on an individual's HIV status is available, the situation is much less clear cut, and a woman who wishes to stay married will often have to choose between accepting unprotected sexual contact or being abandoned by her spouse.

THE ROLE OF THE STATE

In discussing why fertility transition has yet to take off across Africa, it is impossible to ignore the role of the state. As the Asian and Latin American experience shows, even where the economic and cultural conditions favouring high fertility are gone, the state can play a vital role in hastening or impeding the speed of fertility decline (Casterline, Guzman, this volume). The role of governments can extend far beyond the promotion of family planning programmes, important as they are. Legitimation of fertility control is vitally important in order to make the behavior publicly acceptable. In contrast to the situation elsewhere, this need for legitimation is not for the divorce of sex from procreation (thus recognizing sex as pleasurable), but rather an issue of publicly acknowledging that additional children are not always welcome or desirable. Where very high levels of infant and child mortality are a recent memory, often involving the childhood loss of siblings (Barbieri, this volume), there is very real reluctance to ever declare additional children as superfluous. In the African context, the head of state, and his wife (or wives), can have an immense impact,

² BROUARD N. (1994), *Aspects démographiques et conséquences de l'épidémie de Sida*, à paraître, Vallin J. éd. "Populations africaines et SIDA", CEPED, Paris.

through public commitments regarding the active promotion of family size limitation and active contraception. This will be especially important in francophone Africa, where pronatalism often still flourishes as the official credo, supported by the conjoint influences of traditional beliefs, Catholic dogma and the continuing shadow of the pronatalism of post World War I France. As a consequence, the study of the possible impact of induced abortion is especially important in francophone countries (Locoh, this volume).

In the context of structural adjustment, governments have many hard choices to make. One factor which is often overlooked in the economic debates is the consideration of the demographic impact of adjustment decisions. This is especially important in areas such as the imposition of school fees and other educational costs. Systems which are too rigidly elitist, and cut off the chance of social mobility, act as disincentives to fertility restriction (Guzman, this volume). Yet universal free provision may also have the same effect (Makinwa-Adebusoye, this volume). Structural adjustment will be vastly less painful in the long term if it can promote demographic transition and reduce fertility in the short term and by making educational advancement available to small families at all income levels, even in rural areas. To quote from low fertility rural Zimbabwe: "Education is a field which is never drought-stricken" (Mhloyi, this volume).

Another vital area is that of cost recovery in the field of health services. Governments are reluctant to pursue cost-recovery in the case of family planning, perceiving it as discouraging that which they wish to encourage. However, this perception is at least partially wrong. Often the repulsion from family planning services comes not from their monetary cost but from a user-unfriendly medical model that imposes time and self-esteem costs by making a highly elaborate procedure out of what could be a simple cash transaction. This not only wastes time and scarce medical resources, it also creates a range of invisible but powerful barriers. Going to see a doctor requires courage, both because of the intimidating cultural gap between the semi- or totally illiterate client and the physician, but also because such an activity is bound to be semi-public, and is usually outside the normal world of interactions among women (Adeokun, this volume). It has been shown that women's groups can play an important, informal role in legitimising and encouraging contraceptive behavior in Africa (Hammerslough, this volume). Much more could be done to use female nurses to replace doctors and females with minimal specialised training to replace nurses. Governments need to remove the constraints, not only on nurses and non-medical suppliers of contraception, but also on matters such as the public advertisement of contraceptives and services. Governments could also do much more to support and legitimise women's groups. Too often, even in those relatively rare cases where governments recognise the contributions of non-government organisations, they stop short of recognising independent women's groups.

WHAT SHOULD DONORS DO?

Given that, ignoring any questions of total land carrying capacity, African economies can neither support current rates of population growth nor continue to provide education and employment for even the majority of their young people (let alone the totality), what should donors do to assist? Firstly, their role is clearly to act at a secondary level: to help African governments, NGOs and people to pursue their goals, rather than to attempt any direct imposition of external views. Secondly, they should do what they are best capable of doing: provide much needed material resources which require foreign exchange. They can act to ensure that the very basic medical supplies needed to reduce infant and child mortality are available; that a wide choice of contraceptive supplies are readily accessible in both rural and urban areas alike³.

While policy decisions are, ultimately, the domain of governments, donors can and should assist in the support of desirable official policies which, though frequently enunciated, often fail to receive the material support which they deserve and require. Support to women's programs and to women's participation in allegedly open programs constantly falls in this category. Although donors and African governments alike believe in and support equality of opportunity, teeth and resource still remain lacking to ensure movement in this direction. There is still not a single agricultural college devoted to training the same women farmers who produce the majority of the continent's food supplies.

Donors can make a special effort to ensure that women get a fair go, notably in educational opportunities and the generation of employment and income. Although researchers remain puzzled as to the exact mechanisms involved, there is near unanimity that female extended education (beyond the primary level) reduces infant mortality and fertility. Donors, who have done so much to promote structural adjustment, have a special responsibility to ensure that it does not result in additional burdens upon, and discrimination against, women and children. In difficult conditions, this means maintaining a special watch on the fate of large groups, which sadly include so many of the more marginalised women and their children: junior wives in polygamous unions; 'outside wives'; schoolgirl mothers; other mothers who have never been in a stable union; abandoned wives; children who are fostered out because their parents cannot afford to keep them at home. To many Africans, who cherish a certain inherent optimism, there is a considerable attraction towards avoiding the finality of birth control, awaiting rather for options to open up. Children, in these cases, face a shifting arena of both the definitions of their status and the strategies for their support,

³ It has long been this author's view that, independently of any official family planning program, when condoms are as widely available and acceptable as soap, African fertility will fall at least to the four child per woman level.

depending upon the economic circumstances of the time (Bledsoe, this volume). In these conditions it is the men who control most of the options, and the women (however resourceful) and children who are marginalised. In hard times, expanding income generation opportunities for women is not a Western fad, but a requirement of survival.

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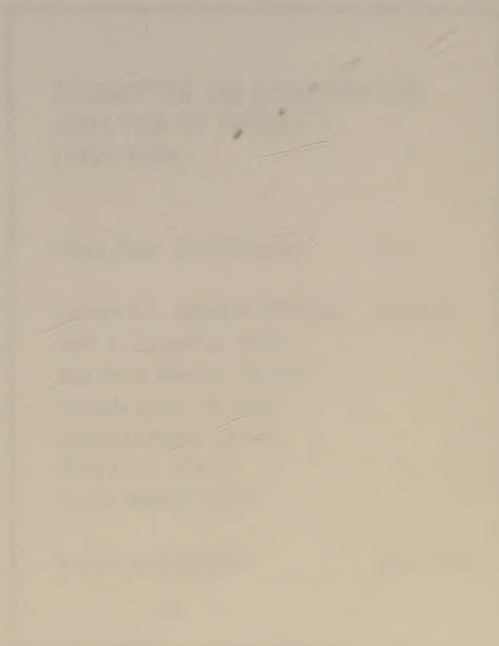
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